

Rock Products

DEVOTED TO
Concrete and Manufactured
Building Materials

Volume XII. CHICAGO, ILL., JUNE 22, 1913. Number 12.

CAROLINA PORTLAND CEMENT COMPANY
We are the largest distributors of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere.
Also Southern agents for the "Dehydratine's" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing. Get our prices.
Charleston, S. C. Birmingham, Ala. Atlanta, Ga. New Orleans, La.

DEXTER Portland Cement
THE NEW STANDARD
Sole Agents: **SAMUEL H. FRENCH & CO.** PHILADELPHIA

UNION MINING COMPANY
Manufacturers of the Celebrated
MOUNT SAVAGE FIRE BRICK
GOVERNMENT STANDARD
DEVOTE a special department to the manufacture of Brick particularly adapted both physically and chemically to
Lime Kiln and Cement Kiln Construction
Large stock carried. Prompt shipments made. Write for quotations on Standard and Special shapes, to
UNION MINING CO.
Mount Savage, Md.
CAPACITY, 60,000 PER DAY
ESTABLISHED 1841

**THE HOTEL UTAH**
SALT LAKE CITY
Salt Lake City's new two million dollar hotel
"American Keene Cement" used.

Durability Strength Superiority
USE

"STRONGEST KEENE CEMENT KNOWN"
AMERICAN KEENE CEMENT CO., SIGURD, UTAH

**CHICAGO BELTING COMPANY**
PURE OAK TANNED LEATHER BELTING
RELiance and SEA LION WATERPROOF
The two brands of leather belting that represent the best in belt construction. Our catalog is yours for the asking.
CHICAGO BELTING CO., 113-125 N. Green Street, CHICAGO
Branches: New York, New Orleans, Portland, Ore., Los Angeles, Cal., Cleveland, Ohio. Tannery, Niles, Mich.




SPECIAL FEATURES IN THIS NUMBER

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**Phoenix Portland Cement** UNEXCELLED FOR ALL USES.
Manufactured by
PHOENIX PORTLAND CEMENT CO.
NAZARETH, PA.
Sole Selling Agent, **WILLIAM G. HARTRANFT CEMENT CO.**
Real Estate Trust Building, PHILADELPHIA, PENNSYLVANIA.

Ottawa Silica Co.'s Washed White Flint Sand
Is used for sawing stone in more than a dozen states. Cuts more and lasts longer than any other sand on the market. Unexcelled for Roofing, Facing Cement Blocks, White Plaster, etc. Freight rates and prices on application.
OTTAWA SILICA CO. Ottawa, Ill.

The Ironton Portland Cement Co.

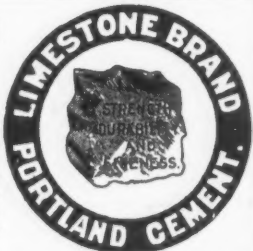
Manufacturers of the
Celebrated Limestone Brand of Portland Cement

Used by the Railroads in Kentucky, Ohio, West Virginia, and Virginia during the past five years. Cement as finely ground as any on the market. Guaranteed to pass all the standard specifications.

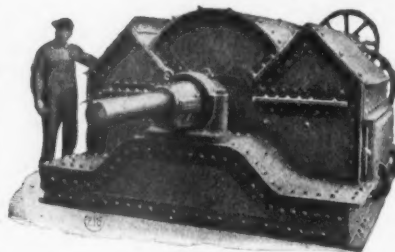
Plant located at Ironton, O., within easy access to seven States, namely, Ohio, Indiana, Kentucky, West Virginia, Virginia, Tennessee and North Carolina. Shipments via the N. & W. Ry., C. & O. Ry., C. H. & D. Ry., D. T. & I. Ry., or Ohio River.

Write for Prices

The Ironton Portland Cement Co.
Ironton, Ohio



"PENNSYLVANIA" HAMMER CRUSHERS



For Pulverizing Limestone, Lime, Cement Rock, Marl, Shale, Etc.

Main Frame of steel, "Ball and Socket" Self aligning Bearings; forged Steel Shaft; Steel Wear Liners; Case adjustable by hand wheel while Crusher is running. No other hammer Crusher has such a big Safety Factor.

PENNSYLVANIA CRUSHER CO.
Philadelphia
New York Pittsburgh



MILLS

Montreal	Port Colborne
Hull	Shallow Lake
Bellefleur	Maribank
Lakefield	Winnipeg
Calgary	Exshaw

For Prices Any Where in
CANADA
Write or Wire Our Nearest Sales Office

**Canada
Cement Company
LIMITED**

Montreal - Toronto
Winnipeg - Calgary



ONE GRADE—ONE BRAND

Alpha Portland Cement

Best in the World for
Sidewalks

Write for our Handsomely Illustrated Book. Sent Free.

General Offices: No. 7 Center Square, EASTON, PA.

SALES OFFICES:

The Over Bldg., PITTSBURGH.
Builders Exchange, BALTIMORE.
Harrison Building, PHILADELPHIA.
National Bank Bldg., SAVANNAH, GA.

Builders Exchange, BUFFALO.
Board of Trade Bldg., BOSTON.
Hudson Terminal Bldg., N. Y.
Marquette Bldg., CHICAGO

Northwestern Portland Cement



The Reliable Portland
Cement

A Portland Cement
for the

NORTHWEST

NORTHWESTERN STATES PORTLAND CEMENT COMPANY
MASON CITY, IOWA



The Best Cement

Rightly Used

Means Permanency

Of course the cement itself must
be up to standard.

In strength Lehigh exceeds the
standard by 35%. Permanency is in
every sack, insuring lasting work,
satisfied customers and so repeat
orders for dealers.

Lehigh Portland Cement Co.



CAPACITY
12,000,000 BARRELS

Allentown, Pa. Chicago, Ill.



"WOLVERINE"

The Alright Cement

MADE RIGHT SOLD RIGHT
WORKS RIGHT
WEARS RIGHT

The Best is None Too Good For You.
Insist Upon.

"WOLVERINE"

Write for Booklet and Quotations.
Factories at Coldwater and Quincy, Mich.
Capacity 3500 Daily.

WOLVERINE PORTLAND CEMENT COMPANY
W. E. COBEAN, Sales Agent,
Coldwater, Michigan
Main Office, Coldwater, Mich.

Tell 'em you saw it in ROCK PRODUCTS

1913.

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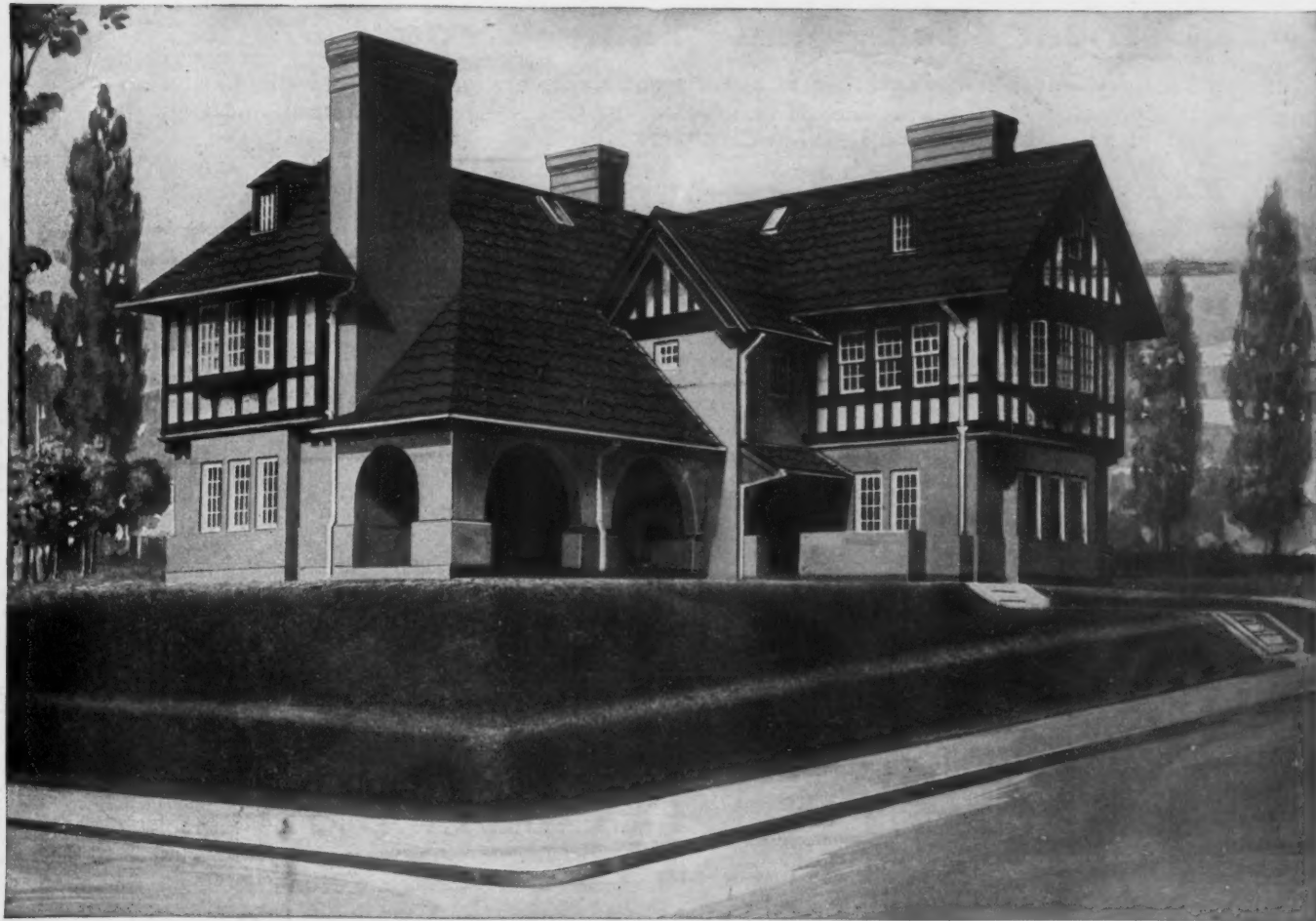
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Vulcanite Ornamental Roofings



THIS BUILDING IS ROOFED WITH OUR STYLE B

A Handsome Roofing That's Inexpensive

Lower priced than common shingles and far prettier—that's our Ornamentile Style B roofing. The "V" edge effect and the various color finishes make it a handsome roofing for *any* residence.

Vulcanite Ornamental

can't ignite from sparks and the coloring can't fade. When once down, your house is roofed to stay—you'll not be troubled with repairs. In addition to this style we have four other patterns of

Vulcanite Ornamental Roofings

that you'll be interested in if you're about to build or repair. *Don't buy wood shingles—they're a fire risk and they wear out too soon.*

Write For Our Booklet and Special Offer to DEALERS.

Patent Vulcanite Roofing Co.

General Offices: 2500 Ogden Avenue, CHICAGO

258 Broadway, New York.

114 E. Pearl Street, Cincinnati.

2014 Avenue A, Birmingham

Factories: Franklin, Ohio; Anderson, Ind.; San Francisco; Kansas City, Mo.

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The GIANT GRIFFIN MILL

PULVERIZES

Cement Rock—Coal—Slate—Cement Clinker

Foundry Facings or any other refractory material where an exceptionally fine grind is necessary—especially efficient on cement materials—large unit—economical in maintenance and consumption of horse power.

The Bradley Three Roll Mill

PULVERIZES

Phosphate Rock—Limestone for agricultural purposes—Flint Clay for Fire Brick manufacture and other materials which do not require a finer grind than 75% thru a 100 mesh screen—especially efficient for pulverizing limestone for agricultural purposes—simply constructed—easily operated—low in h. p.—low maintenance cost—large output.

SEND FOR CATALOG No. 42

BRADLEY PULVERIZER CO.

BOSTON

LONDON

BERLIN

LOCOMOTIVES FROM INTERCHANGEABLE STOCK PARTS



Our standard light locomotives are built on the INTERCHANGEABLE PARTS PLAN. They are assembled from stock parts made to accurate gauges. Every operation is done in a carefully designed jig, and neither expense nor time is spared to insure absolute accuracy. On completion, a corps of inspectors measure every part by means of gauges which are constantly checked up, and no part can be placed in stock until it has received the inspectors' stamp.

With this system every part must be so accurately made as to fit every other locomotive of the same size and type.

For this reason we can make prompt shipment of either a complete locomotive or of any part. This method avoids long delays when parts wear out and also enables a user to keep on hand parts liable to wear in service with positive assurance that each part will fit.

AMERICAN LOCOMOTIVE COMPANY

30 CHURCH STREET, NEW YORK

McCormick Building, Chicago.

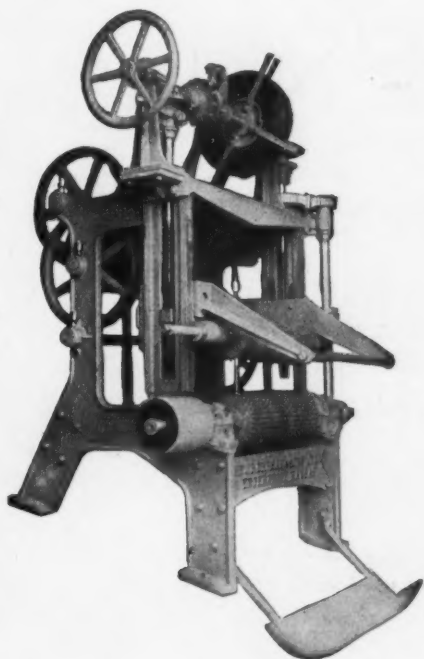
Dominion Express Building, Montreal, Canada.

Standard Supply & Equipment Company, 1710 Market Street,
Philadelphia, Pa.

Carl G. Borchert, Representative, Pioneer Building, St. Paul, Minn.

N. B. Livermore & Company, Los Angeles; San Francisco; Seattle; Portland, Oregon.

Tell 'em you saw it in ROCK PRODUCTS



Points of Interest Concerning The Ehrsam Wood Fibre Machine

The log feeds itself to the saw. As the log decreases in diameter the Speed of the log and of the feed **INCREASES AUTOMATICALLY**.

In other words, the Peripheral Speed remains constant.

The feed of the log to the saw is in direct proportion to the speed of the log. This automatic uniformity of feed **INSURES UNIFORMITY** of **FINE-NESS** in the **PRODUCT**.

No frictional devices are used, none being necessary.

All the working parts are planed. All of the gears are cut from solid steel. All of the parts are interchangeable and numbered, so that duplicate parts can be quickly obtained and easily put in position.

The Saw mandril is extra heavy and made of the best crucible steel.

The journals are chain oiling. No Machine can be more substantially built. Write for full information.

J. B. Ehrsam & Sons, Enterprise, Kans.

Gentlemen:—Some time ago I received a letter from you asking how the wood fibre machine you shipped us is doing. Will say it is the best I ever used. In regard to any suggestions I could make as to how it might be improved, will say that I can make none, as it is O. K.

Yours truly,

SOUTHWEST CEMENT PLASTER CO.,

Frank Dodge, Sup't.

Okeene, Okla., June 14, 1911

Manufacturers of Jaw and Rotary Crushers for Gypsum, Vibrating Screens,
Hair Pickers, Wood Fibre Machines, Calcining Kettles,
Plaster Mixers, Power Transmission

The Enterprise Vertical Burr Mill

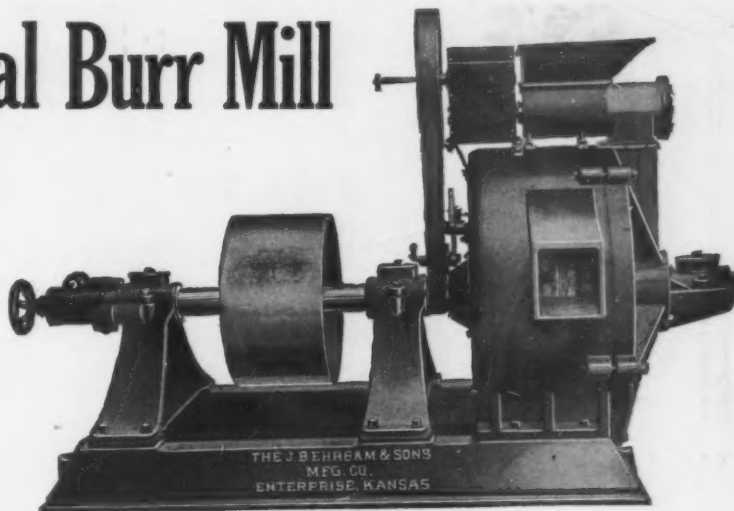
is especially designed for grinding gypsum, limestone, coal, coke, paint, rock, foundry facing, carbon, salt, and other similar substances.

It is **STRONG** and **DURABLY** built.

Has **INTERCHANGEABLE STONES**, which can be easily removed for dressing and replaced.

Is provided with our **POSITIVE CONTROLLABLE FEEDER**, which feeds an absolutely uniform stream into the mill at the required capacity.

**MANY OTHER
ADVANTAGES.**



The J. B. Ehrsam & Sons Mfg. Co.

Designers and Builders of

Complete Equipment for Plaster Mills

ENTERPRISE, KANSAS, U. S. A.

Tell 'em you saw it in ROCK PRODUCTS



WETHRPRUFE

Open Mouth

Bates Valve

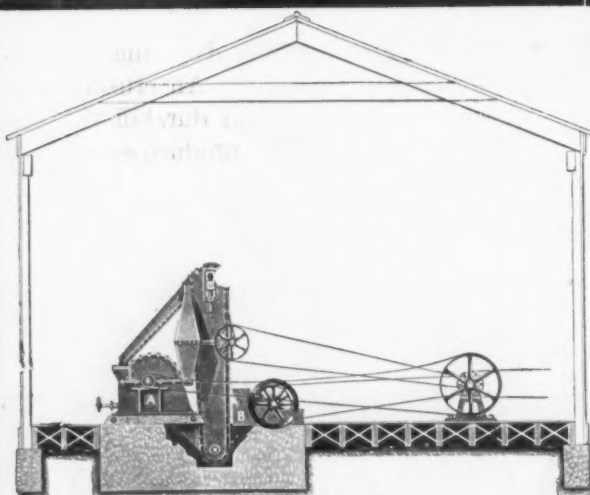
WATERPROOF

An Extra Heavy, Extra Strong Waterproof Paper Bag

For Cement, Plaster, Lime, Etc.

WEST JERSEY BAG COMPANY

CAMDEN, N. J.



Stationary Plant

Reclaim Your Waste Product

GRIND YOUR LIMESTONE SCREENINGS AND MAKE LIMESTONE FERTILIZER

What is Now a Dead Loss to Some Quarrymen
Can Be Turned Into Good Profits

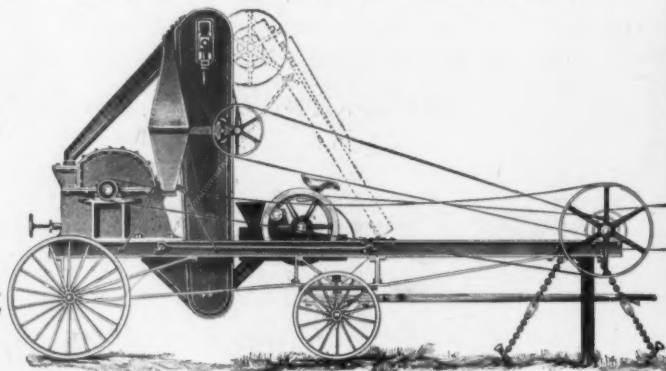
WE FURNISH COMPLETE PLANTS OF ANY CAPACITY DESIRED
Manufactured and Licensed under 87 Separate and Distinct Patents

We now have over 50 plants in operation

BULLETIN NO. 4 EXPLAINS THE
PROPOSITION

The Williams Pat. Crusher & Pulv. Co.

ST. LOUIS 2705 N. Broadway
CHICAGO: Old Colony Bldg.
SAN FRANCISCO: 428 Monadnock Bldg.



Portable Plant

Tell 'em you saw it in ROCK PRODUCTS



AUSTIN GYRATORY CRUSHERS

Made in Eight Sizes

50 to 5000 Tons Per Day

Plans and Specifications submitted and expert advice free on any problems involving rock-crushing or earth-handling.

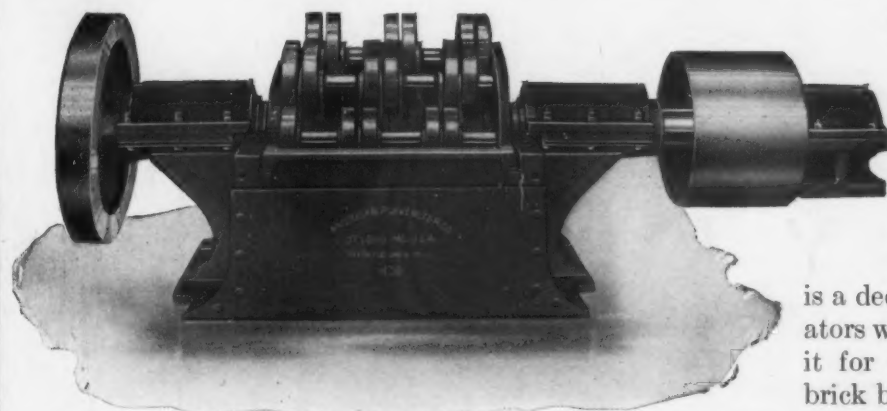
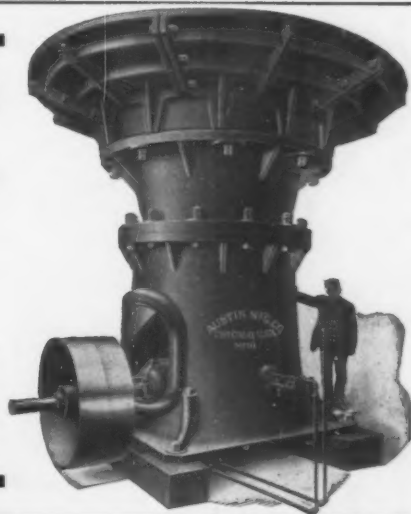
AUSTIN MANUFACTURING CO.

CHICAGO

New York Office: 50 CHURCH STREET

Canadian Agents: MUSSENS, Ltd., Montreal

We manufacture:—Road and Elevating Graders, Scarifiers, Road Rollers, Quarry Cars, Dump Wagons, Stone Spreaders, Street Cleaning Machinery.



For Economy, Operation and
Quality of Material
Turned Out

The American Ring Pulverizer

is a decided success for lime manufacturers. Operators who are using this Pulverizer strongly endorse it for pulverizing sandstone, gravel, limestone, brick bats, ore, manganese ore, coke, pyrite iron ore, oyster shell, quartz, etc.

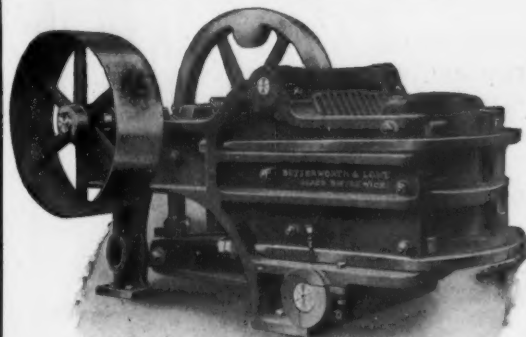
Built for Small, Medium and Large User

This Pulverizer is made in six sizes to accommodate every one who has a crushing and pulverizing problem. Materials of a refractory nature can be fed into the machine in 3" to 6" cubes and smaller. All crushing and grinding parts are made of best manganese steel, and every user praises the strength and durability of the American Pulverizer. The cost of maintenance is low and the improved principles of design produce economy of operation. Every user of pulverizing machinery should make an investigation.

WRITE FOR CATALOG.

THE AMERICAN PULVERIZER COMPANY

East St. Louis, Illinois



Nippers—17 x 19", 18 x 26", 20 x 30", 24 x 36" and 26 x 42".

Jaw and Rotary CRUSHERS

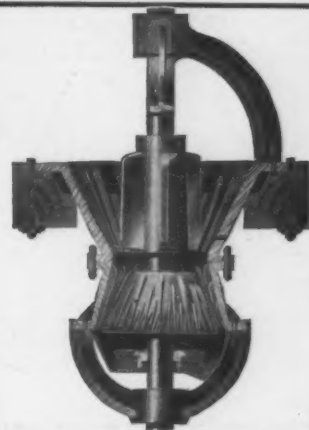
For all Rocks and Ores Softer than Granite

GYPSUM MACHINERY—We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

Special Crusher-Grinders for Lime

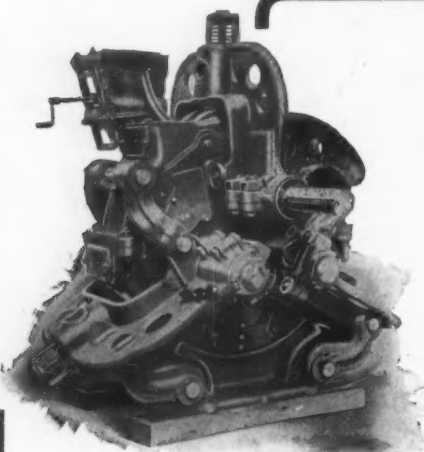
Butterworth & Lowe

17 Huron Street, Grand Rapids, Mich.



Crackers—6 sizes—many variations.

Tell 'em you saw it in ROCK PRODUCTS



MAXECON

Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY, Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

WE DO NOT CLAIM ALL of the CREDIT for this achievement

We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co., Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

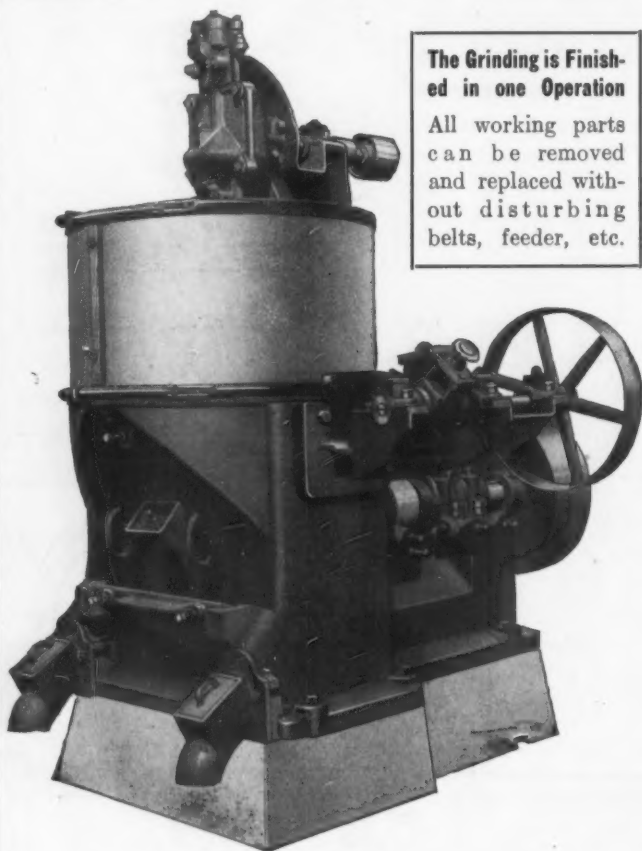
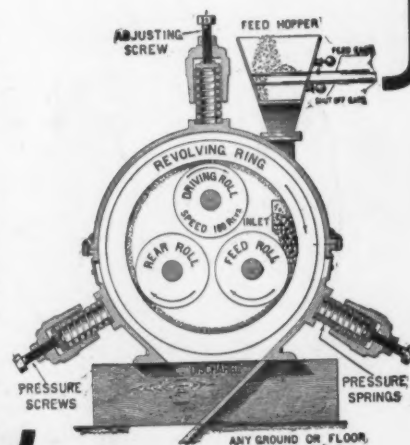
THE RING WOBBLES

The FREE WOBBLING POUNDING RING instantly and automatically ADAPTS its position to the variations of work.

Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.

KENT MILL CO.

10 RAPELYEA ST., BOROUGH OF BROOKLYN, N. Y. CITY
LONDON, W. C., 31 HIGH HOLBORN
CHARLOTTENBURG 5, WINDSCHEID STRASSE 31, BERLIN



The Grinding is Finished in one Operation

All working parts can be removed and replaced without disturbing belts, feeder, etc.

BONNOT PULVERIZER

Grinds and Screens Limestone, Raw Lime and Hydrated Lime

Does it at One Operation. Gives You Any Desired Fineness

GRINDING LIME IS LARGELY A SCREENING PROPOSITION. THE BONNOT PULVERIZER HAS THE LARGEST SCREENING SURFACE AND CONSEQUENTLY THE GREATEST CAPACITY.

NO OTHER MACHINE LIKE IT IN THE ACCESSIBILITY OF SCREEN AND GRINDING PARTS.

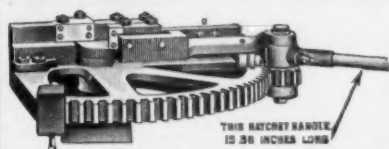
No. 4 Catalog Explains These Advantages

THE BONNOT COMPANY

909 N. Y. Life Bldg.
KANSAS CITY, MO.

CANTON, OHIO

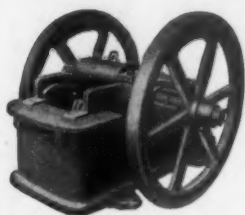
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REINFORCEMENT BAR BENDERS

"Wallace" Bar Benders for reinforced concrete construction work are no experiment but a proven success. In use in all parts of the world. Will bend up to 1½ inch twisted bars cold; also hand tools for bending heated stock into eyes, rings, angles, "U" or "S" shapes, coiling or pipe bending. Send for 16 page booklet.

WALLACE SUPPLY COMPANY 114 No. Jefferson St., Chicago
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Lewistown Foundry & Machine Co.
LEWISTOWN, PA.

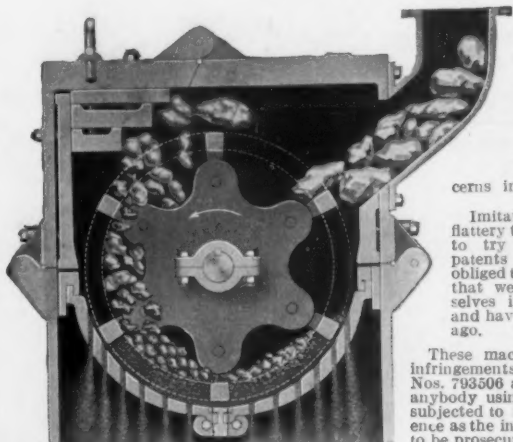
Builders of heavy duty crushers and glass sand machinery. Glass sand plants equipped complete.

WRITE FOR PRICES AND CATALOG.

THE GARDNER CRUSHER

For Grinding and Pulverizing Limestone, Feldspar, Oil Cakes, Bone Tankage, Marl, Phosphate Rock, Bricks, Granite, Coal, Etc.

WARNING



We warn our prospective customers against imitations of our machine which have lately been put on the market by two of the largest concerns in America.

Imitation is a great flattery to us but in order to try to infringe our patents they have been obliged to resort to devices that we have tried ourselves in the beginning and have abandoned long ago.

These machines are direct infringements of our patents Nos. 793506 and 1013527 and anybody using them may be subjected to future inconvenience as the infringers are going to be prosecuted.

GARDNER CRUSHER COMPANY 556 West 34th Street,
NEW YORK

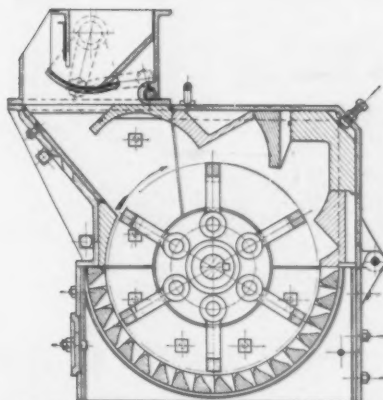
AGENTS

MARSH COMPANY, Old Colony Bldg., Chicago, Ill.

C. O. BARTLETT & SNOW CO., Cleveland, Ohio

W. E. AUSTIN MACHINERY COMPANY, 2 Spring Street, Atlanta, Ga.

Pulverators



Cross Section of Allis-Chalmers Pulverator (Patented)

Pulverizing

by a New Principle

Note that Involute Curve
The Direction of Rotation

Advise us your requirements concerning capacity
and fineness wanted

Forward Sample of Your Material

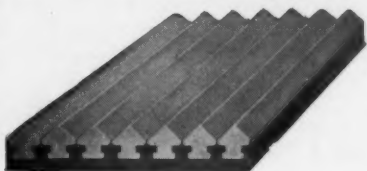
Allis-Chalmers
Manufacturing Company

MILWAUKEE,

WISCONSIN.

For All Canadian Business Refer to Canadian Allis-Chalmers, Ltd., Toronto, Ont.

A Tempered Steel Jaw Plate for Blake Type Crushers



Adamantine Tempered Steel Crusher Jaw Plate
Patented March 31, 1908

The "Adamantine" Tempered Steel Jaw Plate for Blake Crushers is composed of Forged and Rolled Chrome Steel Bars, cast-welded and also mechanically interlocked into a backing of tough steel—and the wearing face is tempered to extreme hardness. We are equipped to supply both corrugated and smooth face plates for all sizes and makes of Blake Crushers.

This method of cast-welding forged and tempered steel bars into a mild and tough Steel Backing, is adapted also to the construction of Cone Heads for Gyratory Crushers, Segments for Corrugated Rolls, etc., etc.

Our products in this line are sold with our special guarantee that they *will wear longer, give better satisfaction and, at our price, prove more economical than any others now on the market.*

— Send for Descriptive Pamphlet —

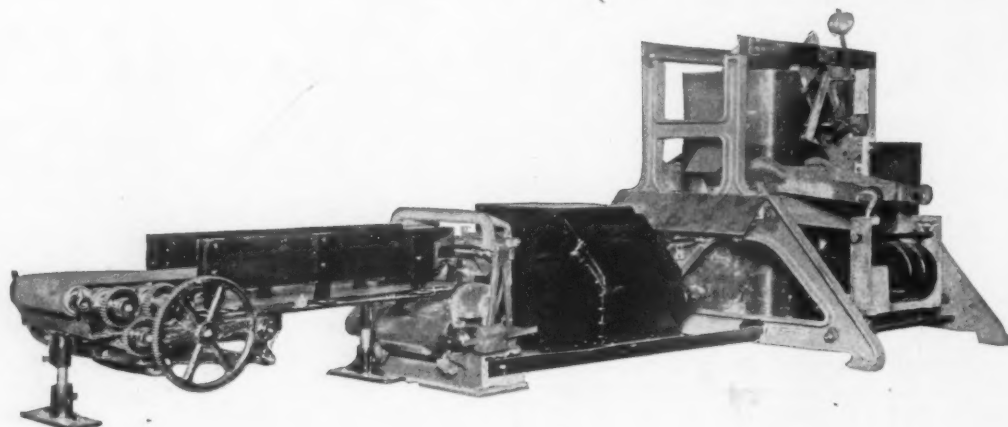
Represented by

J. F. Spellman, First National Bank Building, Denver, Colo.

George W. Myers, Kohl Bldg., San Francisco, Cal.

CHROME STEEL WORKS
CHROME, N.J., U.S.A.

Tell 'em you saw it in ROCK PRODUCTS



Cement of the highest quality is only made by the exact required proportions of

CLINKER AND GYPSUM

Your chemist, with this machine, will give the desired result

AUTOMATIC WEIGHING MACHINE COMPANY

134 to 140 Commerce Street, NEWARK, N. J., U. S. A.
439 Pierce Building, - ST. LOUIS, MO., U. S. A.

OUR MOTTO—"QUALITY and SERVICE"

(Prices Always Right)

WIRE, MAIL OR PHONE OR-
DERS TO NEAREST MILL

The National Retarder Co.

SUCCESSORS TO

The Chemical Stucco Retarder Co.
Webster City, Iowa

The Ohio Retarder Co.
Port Clinton, Ohio

The Binns Stucco Retarder Co.
Uhrichsville, Ohio

MILLS AT

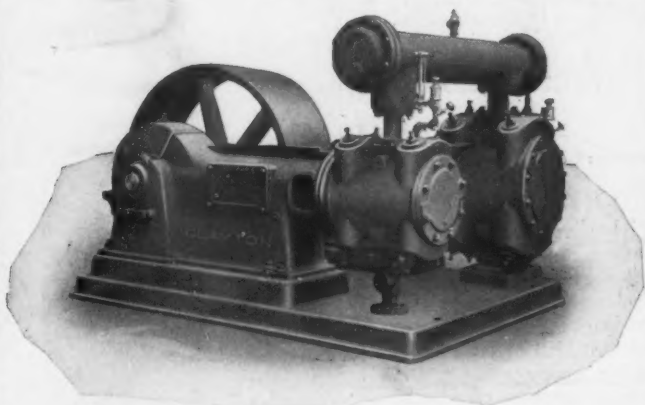
Webster City, Iowa

Port Clinton, Ohio

Branch Office, Toledo, Ohio

Tell 'em you saw it in ROCK PRODUCTS

THE CLAYTON TWO STAGE, SELF OILING COMPRESSOR



A High Class Machine at a Reasonable Price.
Built particularly for locations where air is charged with dust and grit.

Air Valves and all Running Parts fully enclosed.

Arranged for steam, belt or geared drive.

Two stage compressors for 80 lbs. and above, save power, are more uniformly stressed and give better satisfaction than one-stage machines.

Send for Bulletin C206-58



Branch Offices in all Principal Cities.

C164.2

HOTEL VICTORIA

Broadway, Fifth Avenue & 27th Street

SPECIAL RATE FROM MAY 1st

Rooms with
privilege of bath, \$1.50

Rooms with
private bath, . 2.00

ACCOMMODATIONS FOR 500 PERSONS

NEW YORK



HOISTING rope of every description for elevators, hydraulic, electric and power driven, excavating machinery, including dredges, steam shovels, etc., guying for derricks, ships, etc., loading and unloading machinery, lumbering, including skidding, and loading, ferries, mining rope, oil well drilling, suspension bridges, stump pulling, aeroplanes, towing devices, cable roads, cableways and tramways, clam shell buckets, cranes, derricks, flat rope for deep hoisting, ships' rigging and tiller rope, special rope made to order.

Read about wire rope usage in its different requirements in *American Wire Rope News*. Gladly sent free to anyone upon request.



Chicago, New York, Cleveland
Pittsburgh, Worcester, Denver

MITCHELL LIME

has been made for over fifty years. It has always maintained a standard of high quality and uniformity. It is today recognized as the leading high calcium lime.

For chemical or building purposes it will give the best of results.

Two plants with ample capacity and two railroads, guarantee prompt shipments and quick deliveries.

Mitchell Lime Company

Works:
Mitchell, Ind.

528 Peoples Gas Building,
CHICAGO, ILL.



The
National
Lime &
Stone Co.
CAREY, OHIO

Waste Means Loss of Money

WASTE means that you are reaching down into your pocket and meeting leaks that should not exist. For more than seven years we have been expounding the merits of

Monarch Hydrated Lime

As a result, thousands of contractors will use no other. They have learned by experience that it more closely approaches perfection than any other lime, because there is absolutely no waste.

They know that it requires no screening.

That it takes more sand; gauges with one-third less plaster and spreads farther and easier than lump lime.

These are features that are causing thousands to use *Monarch Hydrated Lime*. Are you one of this number?

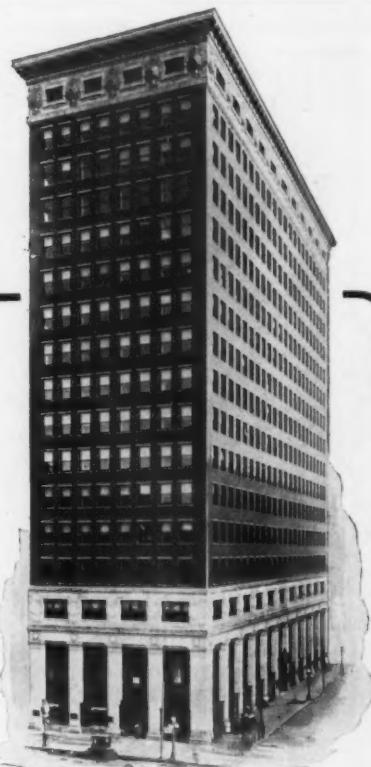
This Dealer Profits by Selling "Tiger Brand" Hydrated Lime



The lime for white coat plastering on this building was sold by the People's Coal and Cement Company, Indianapolis. They have furnished it for two other well known buildings this year, besides hundreds of smaller jobs.

Different architects for every one of these big jobs—but all specified "TIGER BRAND." Architects know that it will not pit or blister in the wall, spreads easy, covers more and costs less than any other lime.

Dealers find that it sells fast, keeps perfectly and gives uniform satisfaction.

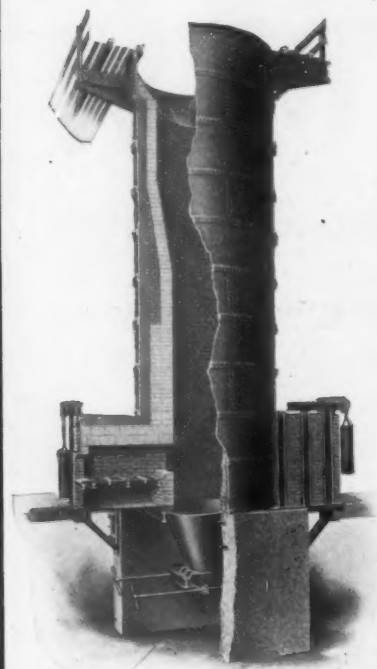


Merchant's National Bank Bldg., Indianapolis, Ind.
D. H. Burnham & Co., Chicago, Architects

The Kelley Island Lime & Transport Co.

Cleveland, O.

BROOMELL IMPROVED LIME KILN



I have been manufacturing lime kilns for the past twenty years. My very latest and best designed kiln is shown in the illustration.

Every Improvement that a long experience could suggest is embodied in this new kiln.

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And yet the price is low.

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A. P. BROOMELL

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The Ohio and Western Lime Company

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Sugar Ridge, Ohio
Tiffin, Ohio
Genoa, O.
Limestone, Ohio
Lime City, Ohio
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Ohio and Indiana White Finishing Lime, Ground
Lime, Lump Lime, Fertilizer Lime, Hydrate
Lime, Cement, Plaster, Hair, Etc., Etc.

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HIGH CALCIUM HYDRATED LIME

At present prices you can waterproof, improve the color and strengthen the texture of all cement construction and actually **save money** because the Hydrate **replaces** the same amount of cement (15 to 25%).

Kritzer Vacuum Process

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We Make It"**

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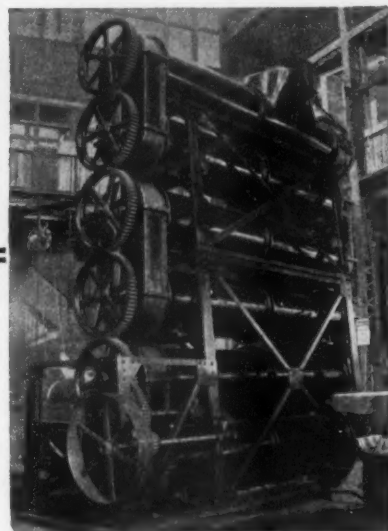
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Its Marvelous Increase In Consumption

Are You Meeting the Increasing Demand for Hydrated Lime?

There is nothing forced or unnatural about the growing popularity of this product. It is a natural growth resulting from a widespread awakening to the advantages of Hydrated Lime for a variety of uses—as waterproofing for Concrete, in wall plaster, and in almost every case where lime is called for. In hydrated form it is weatherproof, more easily handled, and better adapted to modern methods, both of commerce and construction. A continued growth of the demand may therefore be expected.



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The Kritzer Way

insures a product which will hold a continued place for itself on the market. We install plants complete, designed by our own expert engineers to meet your local conditions and turn out a uniform grade of Hydrated Lime of the highest standard, and with the greatest economy in cost of production. The Kritzer Continuous Hydrator, and the accessories installed with it, are the recognized standards in this line.

The Kritzer Service

Any lime can be successfully hydrated by our process; but whether your lime can be hydrated and successfully marketed is another question. We study your proposition and the possibilities of its commercial success, and advise you accordingly. Our nearly ten years' experience in the business is a valuable assistance in this. Ours is not a mail order proposition. We investigate our customers' proposed plant thoroughly before we will enter into a contract with them. We turn down more prospects than we advise to go into the business. We can't afford to have any failures. Our customers' success is our success.

WRITE TO US

THE KRITZER COMPANY

Chicago, Ill.

Tell 'em you saw it in ROCK PRODUCTS

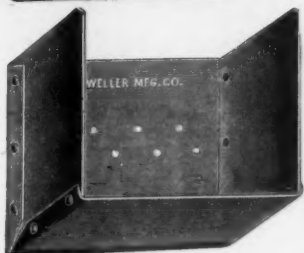
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Weller Machinery Represents the Highest Quality and Construction Possible

The use of Weller Elevating and Conveying Machinery means *reducing* the cost of handling materials in quarries, mines and manufacturing plants. This is proved by the large number of Weller installations and the economy they have effected.

Weller Machinery and "Service" are closely linked. Each in itself represents the *best* and most *highly developed*, until they are fully deserving the *merit* mark of esteem accorded them by users everywhere.



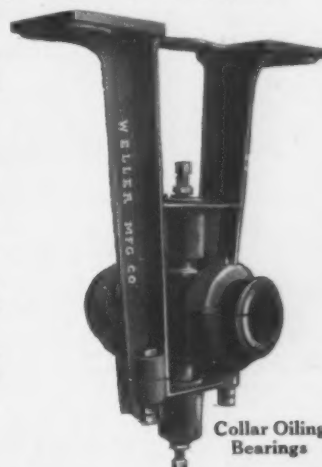
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"The common sense way"

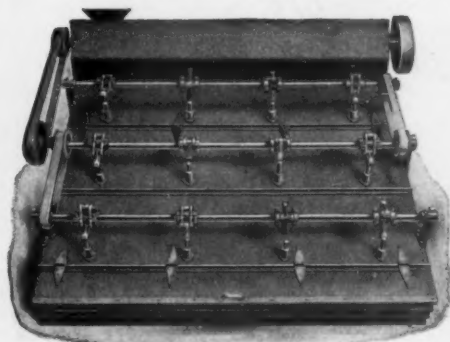
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at random; **specify "Clyde Process" Hydrated Lime.** The material that has the qualities **you** want, either as a consumer or a dealer. The presence of this **quality** has enabled Clyde operators to sell 90% of the Hydrated Lime used in America. Insist on getting "Clyde Process" Hydrated Lime, it will put snap into the appearance of your work, it will ginger up a sick selling organization. If your dealer or producer doesn't carry this material, send us his name, we will tell you where you can get it in your neighborhood. We furnish complete "Clyde Process" Hydrating plants with capacities from 1 ton an hour up. Interesting booklets for the asking.

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CRUSHERS—For coarse, medium and fine work on hard or soft rock. Jaw,

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TRI-ROLL MILLS—For medium crushing, giving Two Roll Reductions.

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Sampling Crushers, Rolls, Grinders and Screens.

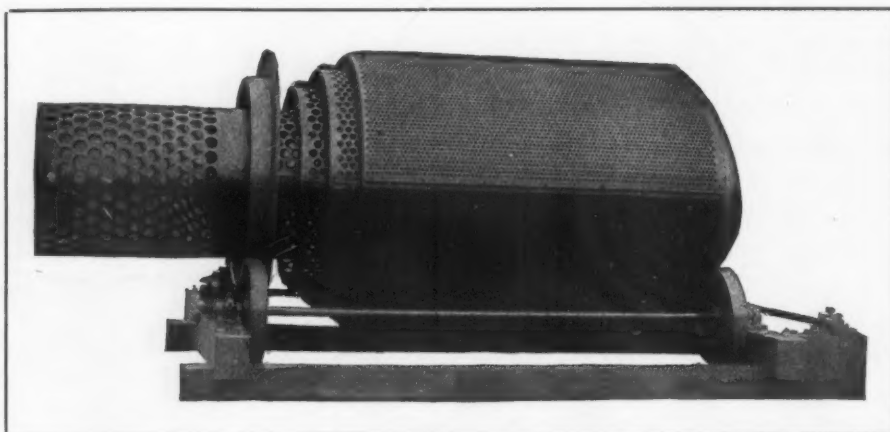
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made solely by Johnston & Chapman, is the

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on the market for wide-awake quarry-men and miners, who want to separate crushed granite, limestone or other minerals, gravel, sand, coal or coke. It will soon earn its cost in saving of repairs, and maintenance, and reduced power, and will do more and cleaner work than any other cylindrical screen of like area. No one can afford to keep old traps in use when the O'Laughlin installed

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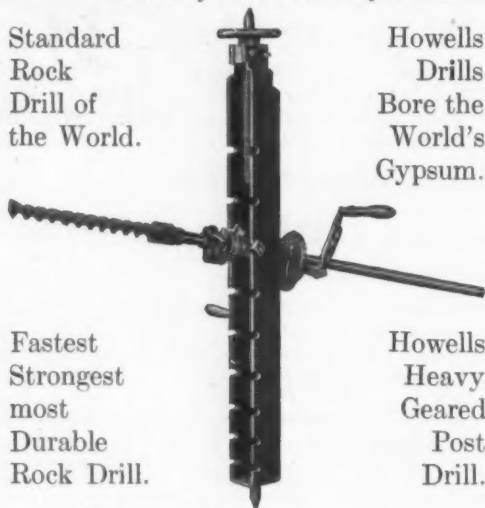
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Perforators of Sheet Metals, Flat, Cylindrical, and Conical Perforated Screen Plates for Quarries, Mines, Reduction Works, Mills and all Industrial Purposes.

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Bay State Brick and Cement Coating

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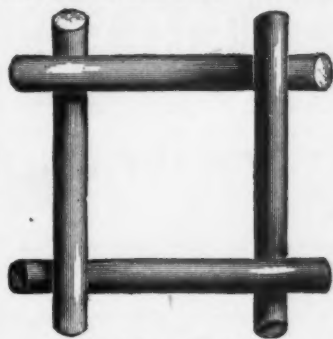
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We make

Wire Cloth

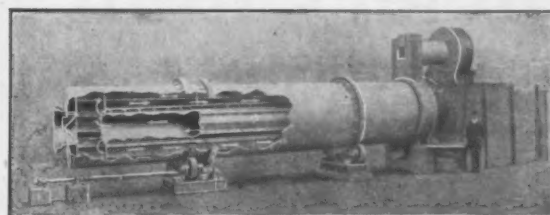
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WORK of all kinds,
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We build six regular types of dryers, but for special work we build machines to order.

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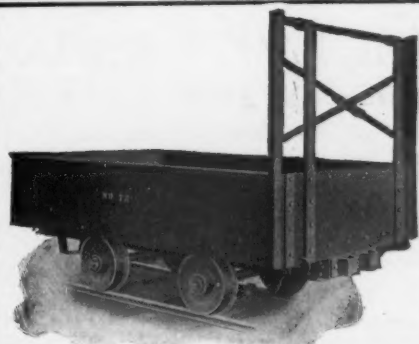
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BARRELS IS BEING USED IN THE
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PERFECTLY WHITE IN COLOR AND STAINLESS

THE BRAND THE U. S. GOVERNMENT HAS USED
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MEDUSA WATERPROOFED CEMENTS
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SANDUSKY, OHIO



Conservation vs. Conservatism

Conservatism frequently means
merely paying expenses—where con-
servation would mean earning good
profits.

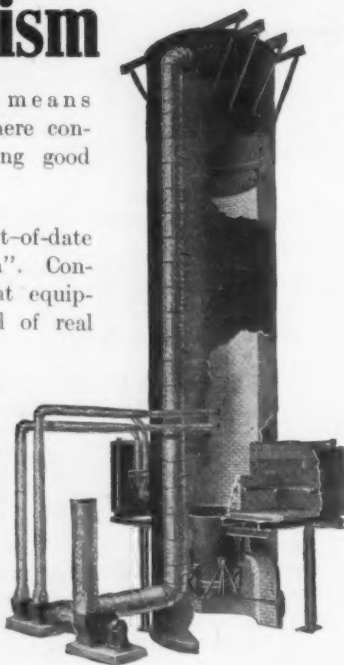
Conservatism clings to out-of-date
equipment as "good enough". Con-
servation replaces inefficient equip-
ment with that possessed of real
earning power.

The installation of
Doherty-Eldred Lime Kilns
superseding obsolete kilns
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example of profitable con-
servation.

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DIRECT HEAT DRYERS

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GLASS SAND
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All Mineral, Animal and Vegetable Matter.

We have equipped the largest plants in existence and our
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(First Efficient Rotary Fire Driers Built)

DIRECT OR INDIRECT HEAT,
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MANUFACTURERS OF THE

Celebrated Cheshire "Finishing" Lime

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on the wall. It is the best lime used in the country today for all

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DEVOTED TO CONCRETE AND MANUFACTURED BUILDING MATERIALS.

Volume XII.

CHICAGO, JUNE 22, 1913.

Number 12

THE FRANCIS PUBLISHING COMPANY

EDGAR H. DEFEBKAUGH, Prest.

Seventh Floor, Ellsworth Bldg., 537 South Dearborn St., Chicago, Ill., U. S. A.

Telephone Harrison 8086, 8087 and 8088.

EDITORS:

EDGAR H. DEFEBKAUGH,

FRED K. IRVINE.

Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.
Every reader is invited to make the office of Rock Products his headquarters while in Chicago.
Editorial and advertising copy should reach this office at least five days preceding publication date.

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More Equipment Needed.

Car shortage reports are going the rounds, and doubtless in a few weeks they will be scarcer than hen's teeth. The big and little railroad men have got to get modern salaries, of course, and the interest on bonds that never purchased any physical thing has got to be met regularly besides, so there is no money left to build new cars. When the present cars are all worn out, the shippers will have to supply their own cars, for freight rates have for a long time been based upon the maximum charge that the traffic will bear. When the freight rate has reached this limit, to increase the rate simply stops the traffic. When the traffic is stopped, to any appreciable amount, there starts an endless chain of causes and effects, which in the aggregate runs up into big figures—sometimes big enough to completely upset the traffic equilibrium. There are some very bright men in the railroad business, and they are well organized and working efficiently, but for some reason or other they do not seem to produce money enough to properly keep up their equipment to take care of the growing needs of modern business. In Chicago and many other places the handling of outgoing freight is a joke, or pitiful, whichever frame of mind you are in when you think of it. Nearly all of the roads are trying to handle four or five times as much business as their equipment and facilities were ever designed to carry, and this overburden is in some cases making a net loss instead of an increased gain. The roads need more cars and more motive power. They also need larger terminal facilities, and especially transfer yards with modern equipment. It is all a matter of equipment, and the public, both producers and consumers of transportation, will be glad to finance the needs of the railroads in this direction. But the very reason why railroad securities are not wanted in the money markets is the well remembered fact that the public have already supplied money for this purpose several times without results. If the roads insist upon going mad over the erection of million-dollar passenger depots in all the important towns, there is no use of trying to tell sensible people that their revenues are too small to supply rolling stock. Such profligate expenditures would rather indicate that the roads were troubled with some plan to invest their money. No one has any definite idea of the investment value of a big railroad station; apparently, it is very small. Not an attractive thing for the average investor to go after, by any means. Yet the money recently spent in New York by two roads for depots would build a solid train of freight cars reaching from Boston to St. Louis and back again, through Chicago to Pittsburgh, or more than all the freight cars that have ever been built, from No. 1—some seventy years ago—down to the last one set upon its trucks this week. If the roads have money in such sums to buy nonpaying investments, as every one can see, what's the use of their telling us that they cannot find money to buy such profit-winners as freight cars. Take our word for it, there never has yet been found anything else to compare with a freight car for earning money. The facts and all the evidence leads up to only one conclusion—that the railroad management of the country has lost the confidence of the public by past acts of faithlessness, and they are handling the truth carelessly at the present time; and that has more to do with their lack of credit than any other one thing. There never will be any lack of credit for the public utility that plays fair, open and above board, but the time is past in the United States for the public to stand for fast and loose play.

Every enterprising dealer in building materials is a prospective purchaser of automobile trucks. The cost of delivery of heavy goods is his main problem, and his principal outlay of money. No sentiment for the costly equine can save him his job with these essentially practical business men.

Again the building trades of Chicago are all on a strike. While everybody believes that the workman is worthy of his hire, there is little sympathy with the present trouble, as it is too evident that they are working their graft overtime. "Poor Richard" said, "There are two kinds of workman badly paid: the underpaid, who thereby lacks the courage to do his best, and the overpaid, who becomes dissatisfied to work at all." "Poor Richard" was the sovereign prince of common sense in all he said. Perhaps that's what is the matter.

Power to fix railroad rates by the state is well established by the Supreme Court, with reasonable reservations as to confiscation, etc. It is but a step in the direction of public ownership, which seems to be the inevitable tendency. There is no use for the management of public utilities in this country taking an obstinate or arbitrary position to the reasonable demands of the public. Everybody wants the railroads to prosper and all are willing to pay the price under fair play, but it is all off with them, and public ownership nearer, when they resort to sleight-of-hand tricks.

Plaster is the finish of the interior of practically every building of every class and every kind. It is the one building material that determines the taste and elegance of the job. But plaster is handled with less intelligence at the job than any other material because the architects have no knowledge of how to specify the plastering requirements of any kind of building operation. Almost invariably the boss plasterer will eventually decide the materials, the proportions, and the method of application, no matter what may be written in the specifications. If he can't have his own way about it, he is sure to "gum the job," and most of the architects learn this very early in their careers. No material is better or more carefully prepared than the product of modern plaster mills, and they are all careful to put tags on every bag explaining how the contents are to be used. If used according to the printed instructions, the expected result usually arrives. But the average man who is having a building erected, or the general contractor, or the architect, are all at sea as to what shall be ordered in the first place. Perhaps there is no way to break through the practical plasterers little cinch.

In place of exempting labor organizations and farmers' combinations from prosecution under the Sherman anti-trust law, the congress and the president might well confine the entire appropriation to prosecutions of these two particular classes of offenders. Does anybody know of any worse examples of un-American throttling of competition than that of the labor agitators and the farmer leagues?

EDITORIAL CHAT

Samuel Cabot, Incorporated, have moved their office and warehouse to 24 Kinzie street, Chicago.

The Barron (Wis.) Red Press Brick Co. has started the season with J. G. Jones, of Indianapolis, as manager for the year; plant will soon be working full blast.

Arthur Whitercraft, G. A. Johnston and W. H. K. Bennewitz were recent visitors at the Chicago office and Chicago Heights plant of the Edgar Allen American Manganese Steel Co.

J. C. Van Dorn of the Universal Portland Cement Co., manager of the Minneapolis branch, is on tour with the Trade Extension Commissioners of Minneapolis to fifty cities of the Northwest.

The next annual convention and exhibition of the American Highway Association will be held at Detroit, Mich., during the week beginning September 29. Between thirty and forty associations will be represented at this road congress.

F. H. Angell, the pulverizer expert of the Jeffrey Manufacturing Company, Columbus, Ohio, called at the ROCK PRODUCTS shop the other day and is happy and full of business, as usual. He is one of the cheerful spirits because he brings his sunshine with him, as many of our readers can testify to.

J. P. Beck, general manager of the Cement Products Exhibition Company, announces very satisfactory advance interest in the coming Chicago Cement show. In spite of the fact that the show is more than six months off, present indications point to the greatest show ever.

A. H. Gallagher, the jovial good-cheer dispenser, as also the products of The National Retarder Co., swooped down on the ROCK PRODUCTS bunch for a few moments the middle part of June. Al. is always heartily welcomed, for his ever present optimism has much to do with chasing away the gloomy forebodings incident to the duties of "a editor."

A new law will go into effect in the state of New York on February 1, 1914, which will make it compulsory to place the correct weight of a barrel of lime on the barrel in figures easily seen. This law is directly in line with the principles laid out by the Lime Manufacturers' Association of New York, for their own protection as well as that of the users of their product.

Jos. E. Symons, with the office force of Symons Brothers' Co., has removed from Milwaukee to Chicago, and he now lives in the Old Colony building. The Symons Disc Crusher is still the new era idea of the reducing business, and this firm is now bringing out a new machine that puts the glimmer on all the old fashioned shaking screens. Everybody who ever used one knows what the troubles are with shaking screens in the past, and the new Symons machine is aimed right at those troubles.

Harry B. Warner, general sales manager of the Security Cement & Lime Company, Hagerstown, Md., is the captain-general of the prompt and efficient service to the customers of the Security company. With Harry it is service first, last and all the time. The line is Security Portland cement, lime and hydrated lime and crushed stone. The dealers tell ROCK PRODUCTS every little while that they never worry for a minute as the car is always in the train as per promise. Wonder if Harry Warner is running the railroads, too?

The Stephens-Adamson Mfg. Co. announce the opening of an office in Boston, Mass., under the charge of Messrs. L. M. Colwell and R. A. McMullin. These men are both experienced engineers, familiar with the best practice in conveying engineering and competent to meet the varied problems that arise in the design of this machinery for its varied uses. No street address can be given until our next issue, but in the meantime correspondence addressed to Stephens-Adamson Mfg. Co., Boston, Mass., will secure delivery and receive prompt attention.

Robert F. Hall, of the Universal Portland Cement Co., Chicago, sailed for Europe on June 12th to attend the Third National Roads Congress to be held in London June 23-28. After the congress, Mr. Hall will spend several months traveling in European countries for the purpose of studying European practices and conditions in highway construction.

Chas. A. Kimball, of New York, sales manager of the Atlas Portland Cement Company, is visiting the Chicago office for a few days. He and Brother Collar, Western sales manager, are going over the situation in the middle of the season, according to long established custom. Incidentally, they are trying to keep cool part of the time at least.

E. E. Fillion, who was formerly civil engineer for the Lehigh Portland Cement Company, is now part owner and general manager of the Indiana Paving Brick & Block Co., 601 Traction Terminal building, Indianapolis, Ind. A general reorganization of the company is now being effected and it is predicted that, under Mr. Fillion's capable management, a period of prosperity will come as a natural result.



S. M. HALL, SALES MANAGER, THE KENTUCKY CEMENT & COAL CO., LOUISVILLE, KY.

The engagement of Donald McDonald, sales manager of R. B. Tyler Co., Louisville, Ky., to Miss Juliette Avery recently was announced. Miss Avery is the daughter of the late George C. Avery, president of B. F. Avery & Sons, the largest plow manufacturing concern in that territory. Mr. McDonald is the son of Donald McDonald, Sr., who has made a brilliant success as an architect. His son is doing equally well in the building supply trade. The wedding will take place next January.

Frederic Kensel, sales manager of the Chicago Structure Tile Company, reports very gratifying activity in that kind of all the cement products, which is known to the trade as concrete hollow building tile. More than fifty different residences and other jobs have gone up this season in concrete tile so far. Mr. Kensel, who made a pronounced impression at the cement show last winter, admits that his enthusiasm feeds and grows with success. He has proved a dozen times over that it costs no more to build a concrete house than it does to build any other good kind, class for class. This is an achievement that has long been waited for and has at last arrived.

S. M. Hall, the genial and wide awake material man, who first won his golden spurs in northern Ohio, and has more recently been keeping the pot a-boiling in eastern Kansas and Texas, has just taken command of the sales department of the Kentucky Portland Cement and Coal Co. at Louisville, Ky., in the capacity of sales manager. Mr. Hall is a dynamo producing 10,000 volts in constant tension without effort. His lime, hydrate, cement, coal, crushed rock and every other product will be popular, for he is the kind of fellow that the Southern trade will receive cordially. In presenting his picture we introduce him to the ROCK PRODUCTS family with a big O. K.

D. F. Henry, chairman of the board of directors of the National Fireproofing Company, Chicago, Ill., has resigned.

The Barron Red Pressed Brick Company of Barron, Wis., has secured the services of J. G. Jones of Indianapolis, Ind., as manager for the present season. Considerable new equipment has been installed.

S. W. Stuart, of Des Moines, Iowa, for six years manager for the Shackleford Brick and Tile Company of Des Moines, has accepted a three years' contract with the Reliance Brick and Tile Company of Belle Plaine, Iowa, to manage that concern.

Raymond McMurray, who recently went into the sales field for the Lincoln Sand and Gravel Company, of Lincoln, was run down by an automobile on the streets of Decatur, June 5, and badly bruised. He was forced to return to his home in Lincoln.

Geo. C. Gruber, formerly of Edison, Kan., recently removed to Moline, Kansas, where he takes the management of the plant of the Moline Lime and Cement Company. He, with several other Morrow county men, is a stockholder in the concern. He succeeds S. M. Hall in the position.

The Pittsburgh Builders' Exchange has elected E. M. Tate, secretary of the Master Plumbers' Association, as its secretary. He succeeds H. V. S. Lord, former secretary, who resigned last week, as did also Captain J. A. A. Brown, who has been executive clerk of the Exchange for 12 years.

Governor John K. Tener of Pennsylvania has approved the Buckman act for submitting to the voters for their approval or rejection the proposed amendment to the Constitution for the issuing of \$50,000,000 in bonds for good roads. This means another step in the direction of enormous contracts of road building material to be made in the next few years.

A. Gendron, foreman of H. L. Crow's concrete works at Madera, Cal., has secured a patent for a device for molding headgates of concrete. There is even more than usual demand for such devices for irrigation work this year, and Mr. Gendron claims that under his system the concrete headgates will cost practically the same as those of wood, in the plant.

W. E. Plummer, Jr., the hustling secretary of the Sand-Lime Brick Association, Buffalo, N. Y., in a recent communication states that reports from the different sections of the country, and also from Canada, indicate that the season of 1913 promises to be the banner year in that special line of brick. Two hundred and fifty million sand-lime brick will be manufactured by the members of the association.

Chas. P. Light, field secretary of the American Highway Association, and whose energetic work in connection with highway improvement has had much to do with the rapid strides made in that direction the past two years, made a short visit to Chicago the latter part of May and of course paid a call to the ROCK PRODUCTS sanctum to shake the palms of his co-workers in his laudable efforts to make the paths of industry more navigable.

W. M. Harsh, well known to many of our readers on account of his connections with the Kelley Island Lime & Transport Co., has recently severed his connections with that concern and is now with the Sandusky Auto Parts & Motor Truck Co., of Sandusky, Ohio. Mr. Harsh acted in the capacity of general superintendent and assistant general manager for the Kelley Island Lime & Transport Co. and the Lakeside & Marble R. R. Co. and other subsidiary concerns for twenty-six years. He had full charge of construction, repairs and operation of the Kelley Island company at Akron, N. Y., Kelley Island, Marblehead and Clay Center, Ohio, and also for practically fifteen years did all of the purchasing for these different departments, as well as for the railroad. Mr. Harsh resigned from the lime and transport company last September, but retained the position of general manager and local treasurer of the railroad until May 1, just passed, when he resigned and thereupon became connected with the Sandusky Auto Parts & Motor Truck Co. His many friends will join with ROCK PRODUCTS in wishing him success in his new field of operations, while regretting the loss of one so well known and esteemed for so many years in the lime and stone business.

WHERE IS THE OVERSUPPLY?

The Report of the Federal Immigration Commission recommends further restriction of immigration because it has found that there is at present an oversupply of unskilled labor in the United States. Based upon this report, without doubt all the over-ocean agencies are advised that this country is overflowing with workers.

Good Lord! How did that commission ever arrive at any such conclusion? The statement is so far contradicted by facts that there seems to be no excuse for the ignorance of the commission (if ignorance it be), and they are due to explain how they happened to be misled so as to develop what interest is behind such information.

It is a notorious fact that very few if any of the quarry and mine operations of the country have been able to work full handed for years by reason of the shortage of laborers. Perhaps there is no one thing that operates so directly to raise the cost of living in this country as the lack of laborers. The farm help is quite as short as that of the quarry and the mine. More than half of the plentiful crops of grapes, berries and fruits that grew in the United States last year went to waste for no other reason than that the cost of picking the crops was greater than they would bring in the market, and the scarcity of labor is the only reason that pickers were commonly demanding \$2.50 and \$3 per day. Evidently the gentlemen who compose the commission have been purposely misinformed by interested parties whilst they themselves know nothing about the labor condition of the country. Briefly stated, it would look something like this: There is very little, scarcely a representation of really skilled labor in the United States. We have a tremendous oversupply of a poor average second rate, partly equipped mechanics who barely know the name of the tools of their trades, who are enormously overpaid, and for that reason dissatisfied and discontented. But of actual laborers who expect to put in an honest day's work for a day's wages we are fully 90 per cent short. The labor problem is beyond question the most momentous one with which we are confronted at the present time. In the big cities there is a floating population and a small proportion of the whole who are professional bums. When arrested they tell the policeman to put down laborer in the line indicating occupation, but never did they toil, neither did they spin, although they flourished like a flower. But in the country, where there is work to do, the waste for lack of laborers is every year greater than the crop reported. In the quarry and the mine, in road work and all places where large numbers of men are wanted, the operation is always limited by the number of workers available. Let the gentlemen of the commission wake up.

BIG BEN'S LOGIC.

B. F. Affleck, general sales agent of Universal Portland Cement Company, but better known as "Big Ben" of the cement industry, in a recent interview handed out some short, clear-cut sparklers of thought that ring peculiarly like "Poor Richard's" advice which has been characterized as immortal common sense. Being more modern than the first "Poor Richard," Big Ben's advice is particularly directed to salesmen working under modern conditions and surroundings, and it runs like this:

"In the first place get a job that you are certain you can work at with interest.

"Then figure out exactly how little you are really worth to your employer. Get your employer's viewpoint of yourself, because it is upon that viewpoint that your advancement depends.

"The next thing to do is to think of all means available for increasing your employer's business, and the last thing to do is to avoid trusting to luck for advancement. Give your employer more and better work than you know your pay justifies.

"The profit bringer is the man who gets ahead."

The Bureau of Conventions and Societies of the Panama-Pacific International Exposition is sending invitations to all the trade associations to hold their annual conventions at the exposition in 1915. One million dollars has been set apart for the construction of a great auditorium in which to hold these sessions. However, this invitation hardly applies to the building material lines, as their dates have always been during that part of the year when the Expo is not doing business, namely, February 20 to December 4.

Arthur S. Lane, of Meridian, Conn., was recently elected treasurer of the Connecticut Quarries Company, formerly known as the Connecticut Trap Rock Quarries, Inc. Under the new charter the company is able to do general contracting and road building.



A SPRINGTIME RHYME.

Spring has its drawbacks, I insist,
But don't call me a pessimist
Because I worry at a time
When lovers coo and poets rhyme.
Believe it as you please or no,
The joys of Spring are mixed with woe.

I start for business feeling fine,
The air invigorates like wine;
And whistling gaily storeward roam,
Leaving my overcoat at home.
By noon the sun is quite concealed,
My blithesome spirits are congealed.

Another day, in prudent vein,
I go prepared for snow or rain;
The weather turns as like as not,
And suddenly grows scorching hot.
I itch and sweat and mop and moan,
With ruffled temper hourly groan.

Uncertain season, no one knows
When to remove his winter clothes;
The day you do, it snows or rains,
You get pneumonia for your pains.
And if you keep them on, well then
You're hotter than you've ever been.

WORTH HELPING ALONG.

The movement for an international celebration of one hundred years of peace between English speaking peoples is a hopeful sign. It shows that we have progressed during the last few centuries.

Not so long ago when a nation grew restless or ambitious, it whetted the broadsword, buckled on a hundred pounds of armour plate, and went across the border to instill in the hearts of its neighbors the blessed advantages of peace. That was the old method, fortunately obsolete.

A few weeks ago a group of distinguished Englishmen reached New York, and their mission was one of peace. The object of this visit was to discuss ways and means to celebrate the centenary of the Treaty of Ghent in a fitting and impressive manner.

The Treaty of Ghent! It had a familiar sound, but for the life of us, we couldn't place it, so we dusted off the old Barnes History, our guide in former days. Well, what did we find? A hundred years ago England and the United States were at war. The causes of this struggle were rather indefinite, and were not even settled at its close. It was a war without reason and inexcusable. But it happened nevertheless.

In the fall of 1814 ambassadors from both countries met at Ghent, and after long and tedious deliberation, agreed on articles of peace. This was on Christmas Eve, 1814.

The news was hurried across the Atlantic, but not before the greatest tragedy of the war occurred. The battle of New Orleans was fought January 8, 1815, two weeks after peace was declared, and over 2,000 valuable lives needlessly destroyed.

The centenary of such an unfortunate and useless struggle cannot be more fittingly observed than by showing the world the needlessness of wars, whatever the cause. Plans are under way in England, the United States, Canada and Australia that will make this celebration world-wide in scope as well as interest.

The party of Englishmen who were in this country visited, besides New York, Washington and Chicago. While in the latter city, a banquet was given in their honor on May 16th, at which addresses were made by Sir Arthur Lawley, Hon. John J. Calhoun and other eminent men in furtherance of plans for the Centenary celebration.

Let us patiently explain once more—it is Parcel, not Parcels Post.

The foliage of your family tree may be luxuriant, but what the business world wants is fruit.

When they give you the key to the city, don't feel flattered. It won't unlock anything.

Be ambitious. But don't think the words discontent, disgruntled and arrogance are synonyms of ambition.

Laying unfinished business on the table is all right at a convention, but it's bad policy for a business man.

Did you ever notice that everybody has time to go to the ball games but the general manager. That's why he's general manager.

A friend of ours who is a commuter buys all his butter in town at a saving of two cents a pound. The other day he left five pounds on the train. Thus does frugality get it in the neck.

THE LITTLE TOO MUCH.

It was a beautiful evening and Ole, who had screwed up courage to take Mary for a ride, was carried away by the magic of the night.

"Mary," he asked, "will you marry me?"

"Yes, Ole," she answered, softly.

Ole lapsed into silence that at last became painful to his fiancée.

"Ole," she said desperately, "why don't you say something?"

"Ay tank," Ole replied, "they bane too much said already!"

THE MATRIMONIAL TRIANGLE.

A policeman rose in court to testify against a prisoner.

"Wot's this here feller charged with?" the magistrate demanded.

"Bigotry, judge," the policeman answered.

"He's got three wives."

"Three!" cried the magistrate. "Why, you ignoramus, that ain't bigotry. That's trigonometry."

THIS ONE IS ALWAYS GOOD.

"There was one man whose life was perfect," said the Sunday school teacher. "Which one of you can tell me who he was?"

Little Mary Jane's hand went up, and the teacher nodded to her.

"He was mamma's first husband," she replied.

AS REUBEN SEES IT.

Farmer Foddershucks—Haow do them summer boarders of yours keep busy?

Reuben Robbins—They play golf.

Farmer Foddershucks—What'n Sam Hill's that?

Reuben Robbins—'S near's I kin figger, it's solitaire shinny.

HORRIBLE THOUGHT.

"I simply can't stand the toot of an automobile horn."

"How's that?"

"A fellow eloped with my wife in an automobile, and every time I hear a horn toot I think he's bringing her back."

There was a young Jap out in Frisco,
Whose diet was rice and Nabisco;
But he salted away every cent of his pay,
Now what do you think makes him frisk so?

"Brothah Jones, will you please lead us in prayer?"
"Lead! Lead!" said Brother Jones, waking up,
"why, I jes' dealt."

As usual, the Michigan peach crop was ruined by frost the other night.

We don't hear much about Mexico now, but we've a hunch that all is not well. In pigeon English, someone may get Huerta soon.

There's one good thing about the California discussion—they are busy talking about something besides their salubrious climate.

We attended a concert the other night and heard a lady back of us ask her companion what he thought of the acoustics. "I don't smell anything," he replied.



NATIONAL BUILDERS' SUPPLY ASSOCIATION.

Meets Annually.

OFFICERS.

President, E. S. Walton, Youngstown, Ohio.
Secretary, Frank J. Davis, Youngstown, Ohio.
Treasurer, H. W. Classen, Baltimore, Md.

ECONOMICAL OPERATION OF MOTOR TRUCKS.

By M. A. Reeb.

The accompanying photographs show our Pierce-Arrow 5-ton truck which we now have had in daily service for nearly one year. As to what has been our experience with the truck compared with horses, I can say that careful observation of the amount of work done and also of the better service and greater dependability of the truck over the results to be obtained with horses has led us to purchase a second truck of the same size and make for an early delivery.

A good many figures are being presented nowadays to try and compare the costs of motor versus horse methods. We have kept a very complete record of every item of expense connected with the truck, which record proves that with proper handling a truck can do its work not only more satisfactorily than teams, but at a saving in cost. However, I am convinced that this ability to reduce costs by the use of a truck depends so much upon the way in which it is operated that I do not hesitate to assert that too little attention has been shown among our people to this part of the subject.

What I mean is that in the successful operation of trucks no one concerned should be allowed to lose sight of the fact that the truck does its work differently and must be operated along different lines than were employed with a slow horse-drawn equipment where your investment is comprised by a greater number of units.

Observation of other people's trucks and our own experience shows that all the difference between success and failure lies in properly meeting requirements and conditions which could be summarized under two general heads. First, the truck itself and its selection as to capacity, style, construction of body, make, etc. Second, the way that the truck deliveries are managed and the system by which its work is planned and directed. I might add parenthetically that in order of importance and with a view to effecting a saving in cost, the order in which these topics stand should be reversed. However, we put the truck first because you have to select that first, and the operation comes second because you get that only through experience and through impressing upon everyone concerned to study the problem.

Under the first head I can only say that in my own case at least I believe that the 5-ton size is best suited to the general needs of our work. Smaller units cost nearly as much to operate and are too often overloaded and are in every way more limited in what they can accomplish. On the other hand, larger sizes become too cumbersome and for many other reasons are not so convenient.

The body with which our truck is equipped is of a special design built to our own specifications and provides a box 10 feet long, 6 feet wide, with sides 20 inches high, which sides and tail gate are hinged and dropped down to permit convenience in loading and unloading. This body will accommodate 110 standard sacks of plaster or cement, and it is further equipped with a hoist to tilt the body for a rear dump discharge whenever it may be desirable to do so. The great advantage derived from this body arrangement comes from being able to load the truck from either side or from the rear by merely dropping the side and placing the truck along side of and at the same level of the platform.

Lastly, under the head of the truck itself, comes the selection of a make and type. Of course, this is a subject which every builders' supply dealer must settle for himself, as there are already plenty of makes to choose from with new ones being brought out every day. For my own part I believe that the consideration of first cost is secondary to

that of economy in operation of the truck, and I could not afford to experiment with many of the untried types and with those makes which have not yet made good. These considerations brought the number from which I made my final choice down to a comparatively few makes. I probably selected the particular type which I did because of my very favorable knowledge of its worm gear drive and of its special features which appealed to my judgment and ideas of what was rational in the way of good mechanical design from builders of established reputation.

Now as to the second part, the method of operating truck deliveries: When we first started using the truck I found it was taking 20 and 25 minutes to load the truck and that the driver was quite expert in offering excuses for various delays and difficulties that took up the time at the delivery end. I put one of my men along with the truck to make a close study of all these conditions and to note exactly how the time was divided upon the different operations of loading, running and unloading. It didn't take long, once we gave the subject a little attention and applied common sense, to materially change the showing with only small changes in the method where needed. In the first place, instead of trying to load with one or two hand trucks at the warehouse, we use four and have two of the warehouse laborers who continually load two of these while the other two are in motion to and from the truck.

As mentioned above, the platform of the motor truck is of the same level as my loading platforms, so that with a sheet steel gangway or bridge the hand trucks can be run right onto the motor platform by the laborers who accompany the automobile truck. These are dumped and the driver arranges and piles the load if necessary, setting the sacks so as to be most convenient for handing off. In the meantime the load is being run on as fast as two men can pass and re-pass each other on the gang-plank. Nobody works any harder, but everybody works continuously and steadily and the truck can be away with its load within five minutes from the time it comes in.

I have described this operation in so much detail just as an example of what little changes were made to save time all along the line. For the first load in the morning the driver is instructed to be ready promptly and on hand at the platform about five minutes before the regular starting time so as to be ahead of the teams. At the end of the day the truck usually finishes up early enough to give the men with it plenty of time to thoroughly and systematically go over the machine and get it all ready for the early starting next day. I send two laborers along with the truck to handle the ma-

terial and the driver directs and works with them to get the work done to greatest advantage.

Another "little thing" that has counted as a time saver has been the instruction to our driver that he keep in touch with the order clerk at our main office by telephone whenever there is any chance that the truck will be needed for special call and that he call up before he starts back. This means that we are able to order the truck to go direct to any particular warehouse from which a hurry-up delivery may have to be made and the men there are expecting it and ready with the next load. Here again confusion and lost time is prevented and the truck is kept upon whatever work it is most desirable to have it do.

The truck beats the horses five to one while it is running, and at the same time the laborers that go with it have plenty of time to rest and be ready to do their work at each end of the line. We have picked a good man for a driver, one who has some of the qualities of a foreman as well as a teamster, and we have left it to him to select and handle the two men who work with him. We depend upon this driver's judgment and ability to deal with conditions as he finds them and to cut out the hold-ups and delays and get along without excuses at the delivery end.

In some cases the load can be slid off by use of the tilting body, or the body may be partly elevated so as to make the handling of the sacks easier. Because of its greater flexibility and its possibility to turn the truck and back it into tight places, the load can be placed at the point of delivery to much better advantage than can ever be done with horse-drawn wagons.

A year ago I concluded to start out with one truck so as to "work out" these methods and solve this part of the subject. I feel that our experience has demonstrated how much of the argument really turns upon this very point of adapting conditions to the change of tools, as it were, and in discovering and adopting the little ways of doing the thing differently so as to get results.

It is the little things that count in obtaining any results, and while everyone in a general way recognizes the fact that trucks are coming, and coming to displace horses, it is these little things that are most often overlooked. You cannot put your truck on the same basis with your horse teams and expect it to beat them out, and on the other hand your horse teams can never rise to the standards set by the truck. When your teams are exhausted and must rest after a full day's work, the truck on the other hand can be called upon to meet the emergencies and overtime jobs and is entirely indifferent whether its day's work is one of eight hours or of eighteen.



M. A. REEB'S PIERCE-ARROW NO. 1.

Just as the present much discussed "High Cost of Living" depends largely on how high we live, so does the remedy for the steadily increasing horse cost of delivery lie in the selection of good trucks and how we run them.

I have become a truck enthusiast, but do not mean to let my faith in what I have now proved that trucks can do get ahead of the conditions that have grown up with the old methods and must be changed for the truck, and which in turn are being changed and improved by the trucks themselves. I am still buying trucks and will continue to do so as fast as this can be brought about.

And finally, I most firmly believe that there is all the advantage in the world in adopting a standard truck equipment and in sticking to that standard; and with many this means the best truck that is to be had.

There remains plenty enough room for experiment with the builders' supply business in attempting to improve things as they exist today with our own business. Therefore, I say, get your trucks from makers who are able to stand back of their own product and relieve you of all concern in that line. In my own case there has not as yet been occasion when we have had to look for such assistance, but we try to run our truck carefully. We never overload it, and we attempt to educate everyone concerned to realize that they have to do with an expensive and finely constructed machine which must be looked after and handled intelligently.

Dallas Builders' Supply Company, Dallas, Tex.; capital stock \$50,000; incorporated by J. R. Neece, J. R. Neece, Jr., and L. A. Painter.

C. F. Howell & Co., Wilmington, N. C., has been incorporated; capital stock \$25,000; incorporated by Jessie N. Howell, A. C. Levering and C. F. Howell.

Construction Material Sales Company, Chicago, Ill., has been incorporated; \$100,000; building stone, brick, partition tile, etc.; Clarence May, H. A. May, E. H. Tillson.

George C. Crumbaugh and others at St. Louis, Mo., have leased a three-story building, 50x150 feet, and will equip for manufacturing patented fire and vermin proof lath from paper and minerals.

William Sherlock Manufacturing and Building Company, Inc., of Syracuse, N. Y., has been organized to deal in building materials; \$15,000. William Sherlock, Charles V. Sherlock, Anna M. Sherlock, all of 719 East Willow street, Syracuse.

Builders' Supply Company, Lancaster, S. C., has purchased buildings and machinery formerly owned by Moore Lumber & Manufacturing Company and will continue plant; W. T. Gregory, president; A. J. Gregory, vice-president; W. F. Harper, secretary-treasurer. Recently incorporated with \$10,000 capital stock.

The Bachman Sand & Stone Company, of Allentown, Pa., will erect a factory building, 48 by 200 feet in dimensions, one story in height. This firm has two large machines of the Fisher type, which manufactures reconstructed stone for building purposes of all kinds. The company has a thirty-year lease upon property containing a practically inexhaustible supply of sand that requires little or no washing.

The Lake Erie Builders' Supply Company, Cleveland, O., held a dinner a few days ago in the Cleveland Athletic Club. It was an informal acquaintanceship affair, and there was a cabaret entertainment. The officers of the company, all of whom were present, are W. C. Runyon, Jr., president; George L. Fairbank, general manager; E. R. Saeger, treasurer; H. B. Kramer, secretary, and W. H. Matthews, Jr., assistant general manager.

The Louisville Builders' Supply Company, 703 Realty Bldg., Louisville, Ky., which recently incorporated and began operations with capital of \$30,000, reports that they are starting off nicely with a good trade assured. The company will handle cement, lime, plaster, sewer pipe, flue lining, wall coping, roofing, etc. A. E. Bradshaw, of the Indianapolis Mortar & Fuel Company, is president of the concern; A. E. Livingston, formerly salesman of the Union Cement & Lime Company of Louisville, is vice president and general manager; James O. Obeas is secretary-treasurer, and A. E. Lavelly, formerly with P. Bannon Sewer Pipe Company and later with R. B. Tyler Company, Louisville, is serving the company in connection with its sales department.

THAT DIFFERENCE IN EFFICIENCY.

Out in the suburbs the other day a ROCK PRODUCTS scribe stopped to watch admiringly the speed and skill with which Fred Fries, expert concrete worker, was smoothing out the surface of a basement floor and making it look almost like polished marble—with neat sweeps to the drains and imperceptible baffles to the area door, and all the nice things that go to make a perfect job.

The general contractor was in another part of the job and impatient because some materials had not arrived. It was a piping hot day and the ice water bucket looked good.

Shortly an auto truck whizzed up with a load of lath and other articles, and the contractor asked the driver if he had seen anything of a team with cement.

"Yes," replied the driver of the auto. "I passed him about a mile down the avenue; his team was down and out with the heat and the driver had to pull them into the shade for a rest and rubout. He had too big a load for that team, anyhow."

"How long will it take you to get back here with fifteen barrels of cement?"

"About two hours, provided I can load and come right back."

"All right, I will telephone your office about it before you get there and countermand the balance of the cement order with the other firm. It is too hot to expect prompt team deliveries on a day like this."

Now if the team load of cement ever reached the job at all, the difference in efficiency lost that firm the balance of the order, which might be great or small. No matter, it lost the business.

This is an actual occurrence, and many of our readers know well enough that this is plenty and enough to lose an order, and doubtless there are many, many similar incidents happening every day when the recorder is not on hand to jot them down.

Moral: Don't let inefficiency lose you your business.

NEW SUPPLY HOUSE IN MEMPHIS.

The Tri-State Builders Supply Company is the name of a new concern starting operations in Memphis. This city is growing faster, perhaps, than any other southern city and is the center of an extensive and rapidly spreading jobbing trade. While the company is new the head of the concern is a well-known old war horse who has seen service in many campaigns. Louis J. Moss, for years connected with the selling force of the Lehigh Portland Cement Company, is in the saddle with his own shingle over the door. (Now of course that is a cement shingle.) They will handle a full line of building materials, including all the specialties which have become indispensable. They are sure to introduce auto trucks for their delivery department, because the new concern will be up to date in all its equipment, because they believe in the right kind of economy, and they will do a big business because they know how to grow fast.

The Giese Bros. Company, Toledo, O., has been incorporated; deal in builders' supplies; \$10,000. Herman E. Giese, Carl J. Giese, Alonzo Hall, Seley La Dow and George Rehm.

PITTSBURGH RETAILERS BUSY.

Pittsburgh, Pa., June 20.—The East End Builders' Supply Company reports much more business in plaster than last year. Its cement trade is also pretty satisfactory as demand is keeping up at higher prices. Sewer pipe is moving in much better shape than in 1912 and also paving material.

Keller Brothers, of the East End, report much improvement in general business during the last month. Good weather has attracted the contractors and this concern is now pretty busy, especially in furnishing material for houses.

The D. J. Kennedy Company, one of the biggest concerns in Pennsylvania, reports from its head office in the East End that business in general is spotted. Residence work in most districts is slow. Down town business is exceptionally good. The sewer pipe business is coming forward in a mighty satisfactory way and this concern's trade in sewer pipe this year will be larger than ever. Its brick plants at Darlington, Pa., are running full. The company finds that outside trade is better than city business this summer although it has been furnishing a lot of big contracts lately among them the Heinz job on the North Side.

Miller & Coulson are putting in the American Clay Machinery Company pug mill at their plant at Gibsonburg, Ohio, where they are turning out 5,000 tile blocks every day. Their business is fully 30 per cent ahead of last year and Ohio trade is especially good.

The Nicola Brothers Company, which lately moved their headquarters from the Farmers Bank building to their fine new plant on Station street, East End, are fairly busy. Mr. Seaman announces that he can see, however, much difference between their trade this year and in 1912, which may be accounted for by the fact that last year this company was exceptionally fortunate in sharing big contracts.

Knox, Strouse & Bragdon are very busy. Their big new truck is working overtime and they are putting on new teams. Prices, they say, are about the same as in 1912. Two nice jobs which this company recently secured were the Dollar Savings Fund & Trust Company on Federal street, North Side, and the Crafton high school building at Crafton, Pa. Louis Anshel, of 250 Darragh street, has formed the Preston Supply Co., capital \$10,000, of McKees Rocks, Pa., a West End suburb, which will deal in builders supplies.

T. A. Miller is at the head of the new Builders' Supply Company at Butler, Pa. He will carry all kinds of builders' supplies.

LOUISVILLE RETAILERS.

Louisville, Ky., June 20.—Warren Brothers, who recently took quarters at Third and Main streets, are doing a large volume of business under the new conditions. One contract of importance secured recently is for Berger metal lumber to be used in the new apartment house being erected by the General Construction Company on Fourth street. While metal lumber is proving one of the best lines carried by Warren Brothers, others are running close behind.

The Louisville Builders' Supply Company, recently formed here, is getting into action and expects



M. A. REEB'S PIERCE-ARROW NO. 2.

to get its share of future business. President Bradshaw, who is located in Indianapolis, makes weekly trips to this city, looking over results of the past six days and suggesting plans for the future. The supply company is located in the Realty building. A new line carried is the sewer pipe manufactured by the P. Bannon Sewer Pipe Company, of this city. With much sewer work in prospect, Secretary Livingston and others connected with the company are much gratified over the acquisition of this well-known line.

Snugly located in its handsome new quarters on Fourth street, R. B. Tyler Company is getting its share of business around the Kentucky metropolis. The recent success of the company indicates that the possession of attractive place of business pays just as much in the supply field as any other. While practically all lines handled by the company are showing activity, a new one which is going well is the lime and hydrated lime made by the Kentucky Portland Cement & Coal Company, of Pine Hill, Ky. The Tyler company only recently secured this agency, it being for the entire state of Kentucky. Donald McDonald, Jr., sales manager of the company, will leave shortly on a business trip to arrange for the sale of the lime in other sections. Sub-agents are to be appointed in every town of importance.

Breese Brothers, of Cincinnati, are finding Louisville and Kentucky a rich stamping ground, the efforts of W. Y. Howard, local representative of the company, being highly successful. One of the latest contracts secured by him is the metal work and composition roofing on a new courthouse at Shelbyville, Ky.

Though June has not been as good as expected, Owen Tyler, one of the best-known supply men of this city, has corralled enough contracts to keep him busy, regardless of the next few weeks' developments.

FALLING OFF OF 14 PER CENT IN BUILDING.

Building in seventy-five principal cities for May shows a decrease of 14 per cent. Permits taken out in May, according to official reports to Construction News for 21,774 buildings to cost \$69,036,846 against 23,200 buildings involving a total cost of \$80,772,782 for the corresponding month of a year ago, a decrease of 1,426 and \$11,735,936, or 14 per cent.

Cities	1912 No. of Bldgs.	1912 Estimated Cost	1913 No. of Bldgs.	1913 Estimated Cost	% Gain	% Loss
Chicago	1,381	\$ 8,925,500	1,222	\$10,375,200	..	13
New York, N. Y.	440	7,567,300	311	10,949,644	..	65
Boston	498	5,009,000	349	8,121,000	..	78
Philadelphia	1,472	4,170,095	1,455	3,990,785	..	4
Detroit	1,135	3,200,645	949	3,085,075	..	87
Brooklyn	995	3,091,270	1,332	4,722,274	..	34
Pittsburg	485	2,541,716	389	1,171,709	116	..
San Francisco	479	1,728,244	457	2,329,493	..	29
Buffalo	431	1,650,000	480	1,849,000	..	11
St. Louis	900	1,309,655	1,009	1,983,853	..	29
Milwaukee	680	1,291,591	566	1,244,849	11	..
Oakland	686	1,257,077	541	1,303,137	18	..
Spokane	408	1,244,900	91	144,120	822	..
Minneapolis	883	1,200,645	790	955,260	31	..
Kansas City	336	1,139,680	484	1,446,705	..	21
Dallas	193	1,107,405	171	1,309,231	256	..
Indianapolis	672	1,089,479	932	1,267,265	29	..
Rochester	330	1,078,887	456	1,256,504	..	13
St. Paul	429	1,072,908	465	1,206,063	14	..
Washington, D. C.	455	975,332	432	1,199,330	30	..
Birmingham	364	909,287	577	1,085,240	166	..
Worcester	187	883,747	199	452,002	95	..
Portland, Ore.	604	848,530	934	1,528,496	..	44
Baltimore	346	833,147	475	820,502	..	..
Cincinnati	1,311	795,572	1,031	797,263	..	..
Atlanta	311	771,637	393	778,089	..	..
Seattle	919	673,380	876	738,110	..	9
Harford	159	674,330	105	731,580	..	7
Columbus	677	619,378	317	607,123	30	..
Peoria	55	607,483	50	158,175	899	..
Akron	357	583,380	374	454,208	28	..
Richmond	61	507,030	125	394,354	..	8
Tel. Co.	286	479,930	282	392,263	..	61
Youngstown	199	445,442	160	264,163	35	..
Memphis	326	417,412	393	684,435	..	30
New Orleans	147	417,066	342	617,817	..	31
Albany	295	399,665	327	453,540	..	11
San Diego	185	385,995	349	805,984	..	52
Pasadena	194	380,388	117	129,634	30	..
Louisville	345	297,460	374	530,760	..	36
Springfield, Mass.	141	365,840	192	606,345	..	47
New Haven	118	351,936	134	463,021	..	24
Grand Rapids, Mich.	943	320,957	177	287,044	12	..
Cedar Rapids, Iowa	68	295,000	40	160,000	32	..
Des Moines	103	282,535	109	220,678	26	..
Jacksonville	114	254,117	71	190,559	23	..
Davenport	..	241,000	..	113,000	113	..
Salt Lake City	109	240,775	86	399,025	..	39
Fort Wayne	187	237,250	129	304,878	..	32
Tacoma	183	231,903	181	137,198	67	..
Denver	105	224,430	163	586,000	..	61
South Bend	147	223,030	90	112,092	98	..
Evansville	141	183,859	124	136,457	3	..
Berkeley	77	180,800	84	253,850	..	28
Sioux City	89	179,135	78	165,178	..	27
Portland, Me.	51	160,550	65	140,000	..	14
Paterson	59	148,380	94	229,597	..	8
Scranton	59	140,537	87	144,355	..	..
Lincoln, Neb.	57	131,095	73	113,485	16	..
Harrisburg	38	124,050	49	189,038	..	47
Charlotte	37	123,038	61	142,040	..	13
Springfield, Ill.	43	120,040	40	120,292	..	..
Nashville	60	117,275	75	156,444	..	34
Topeka	58	109,864	79	100,350	8	..
Sacramento	86	103,012	86	201,874	..	60
Troy	86	102,066	88	112,560	..	..
St. Joseph, Mo.	83	90,525	118	167,615	..	48
Stockton	35	75,510	36	68,689	7	..
Chattanooga	176	70,390	348	99,469	..	20
Terre Haute	31	68,067	99	81,000	33	..
Dayton	39	54,825	125	615,880	..	91
San Jose	31	51,868	44	142,225	..	12
Pueblo	31	38,635	36	50,353	..	27
Colorado Springs	41	28,390	31	57,683	..	61
Totals	31,774	\$69,036,846	28,200	\$80,772,782	..	14

CHICAGO RETAILERS.

Chicago, June 20.—Activity in building operations in this city this year is perhaps the greatest in its history not excepting even the period of rebuilding immediately after the great fire of '71. Reports of the city building department show that permits issued for the first five months ending May 31 were for 4,508 buildings at an estimated cost of \$40,516,000 and with an aggregate frontage of 132,000 feet, or over twenty-five solid miles of new buildings. This is a gain in building over 1912, a splendid construction year, of a little more than ten million dollars, with an increased frontage of practically twenty-one thousand feet or nearly four miles and an increase of more than three hundred building permits for the first five months of the year. In consequence of this condition retail builders' supplies dealers have had a greater demand for building material than known for years and an exceptionally brisk spring season. As the summer season is now approaching and with it usually a slackening off of business, this month so far has given no sign of any diminution in building activities and indications point strongly to as much activity in business the coming summer and fall as during the spring season. There are but few live retail dealers who have not pressed extra teams into service made necessary to do the hauling of material caused by the continual brisk demand this season. Optimism and confidence rule the rank and file of the retail dealers in this industry who are satisfied with existing conditions and pay little attention to Wall "street flurries," "tight money market" and "tariff legislation," which have had no effect on their business this year.

The Wisconsin Lime & Cement Company reports conditions and business fine. All of its yards in the three divisions of the city are more busy than last month and there seems to be no indication of hardly any let up to speak of during the summer season. There is decidedly more building than last year and the demand for building material is excellent. Everybody feels good and conditions are better than were expected.

Geo. W. De Smet, 619 Chamber of Commerce building, distributor of cements and building material said: "The demand is fair and conditions in the trade satisfactory. In fact they are better than last month and prices better than last year. Business has shown greater activity and everything looks promising for a good year."

J. Colombiewski, treasurer of the Lake Building Material Company, Forty-seventh and Leavitt streets said we find a big improvement in business over that of last month. There is much building going on in this section of the city and contractors have all the jobs they can attend to. The demand for building material which has been more than brisk during the entire spring season is keeping up splendidly. We are very busy hauling cement for concrete sidewalks which are being laid on many streets around here. Conditions all around could not be better.

J. B. Tuthill of the Tuthill Building Material Company, 133 West Sixty-third street, said: "There are many buildings going up this year on the south side which require more material than in past years and it keeps our teams busy hauling it to the various jobs with a number of extra teams which we have had to hire this month. Business is good and conditions in the trade are better than they were last year at this time. The outlook for fair trade during the summer months is good."

The Templeton Lime Company's branch yard at 358 Fifty-ninth street is handling a good line of business and finds the demand for all material somewhat more brisk than last month. Conditions are healthy and the outlook for satisfactory trade this summer very promising.

Walter L. Woods, president of the Standard Material Company, at Sixty-sixth and Lowe avenue, said: "Business is good and conditions in every way satisfactory. We are hauling more material than we did last year at this time, we are surprised that there is no sign of any let up in building operations as prices of material rule higher this year. I have noticed, however, that there is more building done always when prices for material are stiff, for fear that they will go higher, which may be the case this year. There are numerous two and four flat buildings and large apartment houses going up in this part of the city. All our teams are busy including a number of extra ones which we were obliged to hire to help out. The situation in the trade looks good and prospects bright." This company has issued a remarkably neat blotter of which it has sent thousands to the contractors of this city.

Hayden Renger, whose yard is located opposite the Cheltenham depot of the Illinois Central R. R., said: "Business is brisk and conditions in the trade exceedingly good. I have done \$3,000 more business this month than in the same period last

year. There are numerous small flat buildings, cottages and residences going up around here and building operations are very active. All my own teams, including the extra teams I have hired, are busy hauling material to jobs. Things are looking very bright for brisk business this summer."

O. H. Hanson, manager of the Circuit Supply Co., Eighty-third and Escanaba avenue, said: "Business is very good this month. We are catering principally to the plaster trade handling the products of the U. S. Gypsum Co. and the Grand Rapids Plaster Co. Building operations north of us are much more active than last year at this time. Conditions in the trade are in every way good and prospects bright. We are laying many cement side walks in South Chicago, running two gangs of men and are figuring to put on a third gang."

Chas. P. Thompson, president of the Calumet Coal and Teaming Co., 9022 Commercial avenue, said: "In volume of trade this month we are way ahead of last year. Business is good and all our teams are kept busy, but not hiring as many as in May. Public improvements are going on apace but building operations are slackening up just a little bit, but are decidedly ahead of last year. While the strain in the money market has had some effect in halting building operations the outlook for this summer is fair."

H. Diestel, manager of A. S. Rosing's yard at 1128 Cornelia street, said: "Business is as good as it ever was last month, which was eminently satisfactory. Building operations are very active in this part of the city, numerous flats, apartment buildings and small theaters being under construction. Things look well, we are busy and our teams are hauling much material to jobs. Conditions in the trade are good and business very brisk."

Paul E. Lambe, manager of the Richardson Sand Company's yard at 4605 Armitage avenue, reported business fair but not as active as it had been the past two months.

J. L. Mortlock, manager of the Waukesha Lime & Stone Company's yard at Devon avenue and Sheridan Road, said: "Business is fine. There is much building in this territory. Our teams including a number of extra ones we had to hire to haul material to jobs are all working hard. Everything looks all right and prospects for continued brisk business for the summer are very promising."

Alfred Frerk of Henry Frerk's Sons, 3133 Belmont avenue, said: "We have no complaints to make about conditions in the trade or volume of business, both are excellent. Building operations around here are active, our teams have all the work they can comfortably do and the situation all around looks well and we expect a good summer season."

A. H. Templeton, president of the Templeton Lime Co., Homan and Grand avenues, said: "Business this month remains good and we have comparatively lively times. Conditions in the trade are healthy and the coming summer season's business promises well."

Arthur Druecker, of N. J. Druecker & Co., 2634 North Artesian avenue, stated: "Business is pretty good this month, as good as we expected and very satisfactory. There are not the number of buildings going up in this territory as last year, but they are all large ones and require more material than the buildings erected last year. We are busy, expect a good summer season and find conditions in the trade healthy."

OCCUPIES NEW OFFICES.

A business event that was a real society function was the opening a few days ago of the offices of the Cleveland Builders' Supply Company in the Leader-News building, Cleveland, Ohio. The foyer of the tenth floor, upon which the offices are located, and the fourteen rooms used by the concern were gay and fragrant with the flowers sent by business associates and competitors. During the afternoon and evening more than 6,000 visitors inspected the ideal layout for the transaction of the business of the company.

The feature of the suite is the display room, where more than \$4,000 has been spent in decorations. Representatives from manufacturing firms of builders' materials from all parts of the United States attended the opening, and all pronounced it one of the most extensive and effectual display rooms in the country. It was designed by Sales Manager Robert Mitchell, and local contractors, who visited the rooms in great numbers, expressed their surprise at the beauty of the arrangement.

An orchestra played while the young ladies of the office force served light refreshments and souvenirs of flowers. The evening reception was especially brilliant.

Concrete

NATIONAL ASSOCIATION OF CEMENT USERS. Meets Annually. OFFICERS.

Richard L. Humphrey, Philadelphia, Pa., President.
Arthur N. Talbot, Urbana, Ill., Vice-President for two years.
L. C. Wason, Boston, Mass., Vice-President for one year.
H. C. Turner, New York, N. Y., Treasurer.
Edw. E. Krauss, Philadelphia, Pa., Secretary.

CEMENT SHOW SPACES TO BE DRAWN NEXT MONTH.

The Cement Products Exhibition Co. has sent out to exhibitors detailed information covering the next national Cement Show, which will be held in Chicago in the Coliseum, February 12 to 21, 1914. This mailing of diagrams, rules and regulations and application blanks so early in the season is a new departure which it is believed will afford the management more time for working out the details of equipment, installation and advertising of the exhibition.

This year the first drawing for spaces will be held Tuesday, July 29, and all applications which will be permitted to participate in this drawing must be on file in the offices of the exhibition company not later than noon, Tuesday, July 22.

The coming show will be conducted on a more elaborate scale than any of the previous expositions and more time will be required for its production.

There will be but one show during the winter and Chicago has been chosen because of its convenient location and because of its accessibility from all points within a large territory noted for its activity in concrete construction. This one show is planned to eclipse even the 1910 show held in the Coliseum and the big New York cement shows held in Madison Square Garden. This is possible because of the fact that there is to be but one show and the management will be able to devote its entire time and energy to the bringing out of a tremendous attendance of contractors, cement products manufacturers, architects, engineers and builders.

An elaborate scheme of decoration will be installed which will bring out the decorative possibilities of concrete to a more marked degree than in previous schemes of decoration.

The time chosen, February 12 to 21, is most opportune because at that period of the year dealers, contractors, engineers and manufacturers have the most time to consider the purchase of equipment and are ready to receive estimates on their requirements.

The arrangement of spaces has been somewhat changed. The space units have been increased in size and space rates have been made considerably lower. This was planned especially to afford manufacturers of large machinery ample room in which to make their displays. The arrangement is such that all parts of the Coliseum and the Annex will be easily accessible. The omission of partitions, which in previous shows cut off to some extent the view of displays, and the opening of aisles, especially in the Annex, will give every visitor to the show an opportunity to inspect all of the exhibits. A new space numbering system will be used so that the visitors can more readily find exhibitors for whom they are looking.

The show will be two days longer than heretofore and no doubt the two additional days will bring out a considerable increase in attendance. These additional days were provided so that out-of-town

visitors, attending the numerous conventions which will be held in Chicago during the period of the show, will have ample time to attend both the conventions and the exhibition.

The cement shows in Chicago have been uniformly successful, both from the point of view of the management and of the individual exhibitors. The co-operative character of the shows have brought about splendid results. In the promotion of the 1914 show the management has been guided solely by the wishes of the majority of the previous exhibitors. The 1914 show in Chicago will hold its place as the premier event of the American cement industries.

INEXPENSIVE CONCRETE GARAGES.

Of late years so many people have purchased automobiles that the question of housing them has become very important. So many people have machines who have small incomes that they have to give much consideration to the question of the cost of their garages in order that they shall come within their means.

It is necessary that a garage shall be fireproof on account of the danger of fire due to the storage of gasoline, etc., and it is necessary that it be damp-proof to prevent damage to the machine through dampness when it is required to be stored during the winter weather. In addition to both of these



SHOWING PILASTERS MADE OF CONCRETE HOLLOW TILE FILLED WITH CONCRETE TO CARRY ROOF LOAD.

requirements everybody wants his garage to cost him as little as possible.

Both of the former requirements may be met but usually are too great an expense, and it has heretofore been hard to meet all three requirements. The Chicago Structural Tile Company has met these three requirements and through this paper is telling the public how it can be done.

By the use of concrete hollow tile as manufactured by the Chicago Structural Tile Company an automobile owner can construct a garage more cheaply than with any other material except wood, which is not fireproof, and he can have a garage both fireproof and waterproof at the same time.

The above cut shows a garage 100 feet long, 25 feet wide and 12 feet high, and was built near Chicago at a cost of less than 6 cents per cubic foot. During the construction of this garage the tile layers each laid on an average of 350 tile a day, and the total length of time that was required to lay all the tile in this building amounted to four days.

The next cut shows the pilasters made of tile filled with concrete to carry the roof load, so as to assist in relieving the hollow walls of some of the weight of the roof. This construction is so cheap that a garage to hold twenty automobiles could be built as above stated for less than 6 cents per cubic foot.

For individuals who desire a garage small enough for one machine, such a garage can be built for a very small sum and the walls should be erected in one or two days. The tile is so cheap that it constitutes only a very small part of the cost of the garage.

A small garage is shown here built for Sergt. W. S. Haedtler, of the Woodlawn Police Department, at a small cost and is fireproof as well as moisture proof and can be seen in the rear of Sergeant Haedtler's concrete hollow tile residence at Sixty-fourth street and Star avenue, Chicago.

The Chicago Structural Tile Company will take care of the construction of such a garage, and the public will find it possible to have the kind it wants for a very small sum compared to a garage of other materials if it will only take the trouble to investigate and realize that there is a material that can accomplish these three requirements.

This paper is familiar with concrete hollow tile and with the low cost of it, and will cheerfully give the public any information it possesses regarding its high qualities.

The office of the Chicago Structural Tile Company is at 537 South Dearborn street, Chicago, and an investigation of this product will astonish inquirers as to the many different kinds of buildings that are constantly being constructed of concrete hollow tile. No building built of it has ever failed to meet with the heartiest approval of the owner, and for economy sake if not for other considerations it is well worth deep investigation.

EIGHTH MID-WEST CEMENT SHOW.

Ninth Annual Convention of the Nebraska Cement Users' Association to Be Held at Omaha.

The board of directors of the Nebraska Cement Users' Association met in Omaha, June 9, and decided to set the dates for the eighth Mid-West Cement Show, January 30 to February 4, 1914. This will give a five days' show, opening on the evening of Friday, January 30, and closing on Wednesday evening, February 4.

The dates for the Ninth Annual Convention of the Nebraska Cement Users were set for February 2, 3 and 4, 1914. President Peter Palmer and Secretary Frank Whipperman anticipate a much larger show than that held last year.

The large Omaha Auditorium will be re-platted and the booths arranged in a more novel and attractive manner. Crop conditions over the entire middle West are excellent and everybody is looking for a big year. The association is getting into the game a little earlier than usual in order that great publicity can be given among the cement users and concrete workers.

The association has authorized the secretary to employ ample assistance and card index every cement worker and contractor within a radius of 500 miles of Omaha, with the view of getting them into the Nebraska Cement Users' Association and to attend the Mid-West Cement Show. Plats and space contract blanks will be mailed out shortly.

EFFECT OF SEA WATER ON CONCRETE.

The Bureau of Standards of the United States Department of Commerce has been conducting investigations for the purpose of determining the suitability and permanence of cement in structures exposed to chemical and mechanical action of sea water.

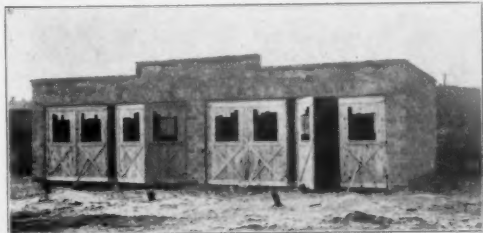
The disintegration of cement structures in contact with sea water has received the attention of engineers for a number of years. While there are cement structures which have withstood the action of sea water for years and probably will continue to do so, yet there are structures that have failed. The cause of the disintegration is not certain. The subject has been studied by the engineer in the Bureau of Standards with a view of determining just what reaction takes place when the salts present in sea water and in the alkaline soils act upon cement and cement mortars.

One of the conclusions of the investigation is that properly made Portland cement concrete when totally immersed, is apparently not subject to decomposition by the chemical action of sea water.

An interesting description of a series of tests and a summary of conclusions is contained in technological papers No. 12 of the Bureau of Standards, Department of Commerce. Free copies of the document may be had upon application to the Bureau of Standards, Washington, D. C.

The Wolcottville Cement Products Company, Wolcottville, Ind., has been incorporated; capital \$10,000; to manufacture cement products; J. H. Yeager, G. W. Lindemuth and J. F. Holsinger.

On and after July 1, 1913, the general offices and main factory of the Ideal Concrete Machinery Co., heretofore of South Bend, Ind., will be located in Cincinnati, Ohio, where the company announces that larger factory and other conveniences will permit a more intimate and better service to its patrons.



SMALL GARAGE ERECTED FOR SERGEANT W. A. HAEDTLER OF WOODLAWN POLICE DEPT.



GARAGE FOR TWENTY AUTOMOBILES BUILT AT A COST OF LESS THAN 6C PER CUBIC FOOT.

CONCRETE BRIDGES WITHSTOOD RECENT FLOOD.

One thousand bridges are estimated to have been wrecked in Ohio alone by the March flood. With the possible exception of a bridge at Brookville, Ind., which was of known unsafe design, the only injury to a concrete bridge was by undermining of piers in gravel foundation. One bridge designing company reports that of 2,200 concrete bridges designed by them only two sustained damage and that these were small highway bridges.

Sub-drainage, deforestation and restricted channels are responsible but necessary in the further development of property along our streams. Expecting such floods, we must build safely and the concrete arch bridge seems to be the only type which has come through the recent experiences with practically a clear record.

R. W. Young will erect a cement block factory at Paullina, Iowa.

Burch & Lundberg have leased a building and will establish a cement products plant at Lake City, Iowa.

Emlet Cement Roofing Company, St. Louis; capital \$50,000. Incorporators, Luther M. Emlet, Walter G. Turner and C. E. Sanders.

E. H. McGannon and T. A. Doyle have bought a gravel pit at Darwin, Minn., and will start a cement tile building and silo block plant.

Herring-Short Concrete Co., Wilmington, N. C.; capital \$25,000; incorporated by J. C. Herring, Augustus S. Short and W. G. James.

John Nolan, who has bought the Mitchell, S. D., Cement Block & Tile factory will add new machinery and equip for all kinds of cement work.

Moline Cement Products Company, Moline, Ill.; \$20,000; to manufacture cement products. Incorporators, James P. Pearson, J. B. Finley and Chas. C. Lopstein.

The Goggin Construction Company, of Arcola, Ill., has been awarded contract for a concrete bridge over the Sagamon River near Fisher, Ill., to cost \$11,083.

Peoria Trusswall Stone Manufacturing Company, Peoria, Ill., capital \$25,000; concrete construction; incorporators, C. P. Burt, Robert Hill, Fred E. Maple.

The Zeidler Concrete Pipe Company, which operates factories in St. Joseph and Joplin, Mo., has leased a site in Muscatine, Iowa, and will open a plant in that city.

Florida Brick & Stone Co., Bradentown, Fla.; organized to manufacture concrete building blocks, brick, etc.; J. W. Willis, president; E. F. Atwood, vice-president; A. J. Bear, secretary-treasurer.

B. M. Mathias and D. H. Mathias have opened an office in the Citizen's National Bank building, Mankato, Minn., for the Circular Concrete Structure Co. Their specialty is round concrete silos.

Pennsylvania Cement Co. has the contract to supply one of the sections of the Lexington avenue, New York City, subway with cement, and estimates that it will require 1,000,000 barrels.

W. E. Lindberg, in Woodhull, Ky., has purchased a lot and has begun the erection thereon of a building in which he will manufacture cement blocks for foundations and building purposes. Mr. Lindberg has had seven years' experience in the cement business and is therefore well qualified for the task in hand.

Campbell & Morgan, Appleton, Wis., recently purchased the business of the Driscoll Cement Stone Co., of that city. Campbell & Morgan deal in concrete blocks, cornice, wall coping, burial vaults, and are contractors in all sorts of concrete work, making a specialty of building cement sidewalks. They have built many of Appleton's concrete and cement sidewalks, as well as doing other concrete work in the city and county.

BITUMINATED CEMENTED MACADAM.

A new method of pavement construction has recently been tried out with success at Kenilworth, Ill., a suburb of Chicago. It is what is known as "bituminated cemented macadam" pavement. About 4,100 square yards of this pavement were laid in Kenilworth last fall, says Engineering and Contracting.

The roadway is eighteen feet wide and was constructed in cut, in water soaked clay subsoil. Tile drains were built under the margin of the pavement under the gutter. On the sub-grade a layer of limestone was placed and compacted to a finished thickness of 6 inches. This was rolled and filled after the manner of the usual waterbound macadam base. On this base was placed a wearing surface averaging 3 inches thick. It consisted of a layer of limestone 1 inch to 2 inches in size, thoroughly rolled to crown and well locked together. A cementitious binder was spread dry over the surface of the rolled stone and swept into the interstices and the stone given a light rolling. Water was then applied and all bare spots developing were swept over into the cement mortar until the surface was smooth, and all surface voids, at least, thoroughly filled. The road was barricaded for a week and wetted frequently. After the surface had dried about 1½ gallons per square yard of Tarvia was applied and while hot a layer of torpedo sand 1¼ inches in thickness was evenly spread over the entire surface.

This is a very economical pavement and is doubtless noiseless, sanitary and non-slippery. A small piece was recently cut out of the surface and it showed an extremely dense wearing surface. The pavement is resilient and yet presents a tough, smooth, waterproof surface.

Application has been made for a patent for the method of preparing and applying the special binder used, which of course cannot now be made public. The pavement was built and the rights to it are controlled by John A. McGarry & Co., 1001 Security building, Chicago. Windes & Marsh, of Glencoe, Ill., were the engineers in charge.

GIANT DAM AT KEOKUK COMPLETED.

The great Keokuk dam across the Mississippi river was completed May 31 and the last bucket of concrete placed in the structure amid waving of flags, shrieking of whistles, and cheers of guests and employees. For the first time the "Father of Waters," at a point where the river is nearly a mile wide, has been harnessed to produce electric power.

Mrs. Dexter P. Cooper, wife of the superintendent in direct charge of the building of the dam and sister-in-law of Chief Engineer Hugh L. Cooper, placed a metal box in the last bit of concrete. In the box was a document telling of its building and coins contributed by the employees.

The dam, built of concrete, is 4,627 feet long, 52 feet high, and 42 feet wide at the base. It required two years to build. The dam creates slack water for sixty-five miles above and a lake from one to three miles wide makes possible open navigation over the one-time impassable Des Moines rapids above that city.

The harnessing of the Mississippi at that point was first suggested by Robert E. Lee, then war department engineer, more than sixty years ago. Among the guests at the ceremonies were men who had been active in the work, including Maj. M. Meigs, government engineer in charge of navigation on the upper Mississippi.

The cement which entered into the construction of this mammoth engineering feat was furnished by the Atlas Portland Cement Company and comprised about 750,000 barrels.

H. E. Whitnall and W. G. McSpadden, who have been carrying on a general concrete construction business at Milwaukee, Wis., under the firm name of Whitnall & McSpadden, have dissolved partnership and the business will be conducted by Mr. Whitnall under his own name.

"The prettiest concrete floor is not the best wearing," remarked Leonard C. Wason, president of the Aberthaw Construction Company, Boston, in a recent interview. Mr. Wason stated that a nice appearance is given to a concrete floor by the small particles of sand and pebbles, but these break down. For long service the best floor is the one made with the coarse material near the top. After a while this floor wears down to the coarse material and then looks like a terrazzo floor. "It is the quality rather than the high polish that counts in concrete floors," stated Mr. Wason, "and it is a pity more manufacturers do not realize this." Mr. Wason also remarked that it is very hard to get a good wearing finish and a good-looking finish at the same time.

HOISTING AND PLACING CONCRETE AT LOW COST

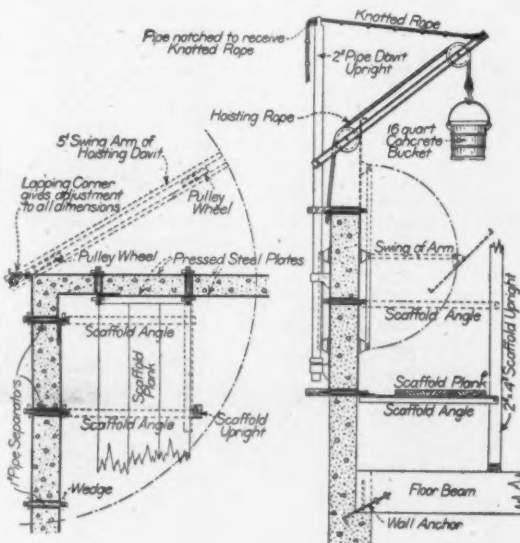
On large buildings by present methods concrete is being raised and placed at a low yardage cost. The most modern method is of spouting by the use of a tower with metal or wooden troughs. While this is of advantage on work where the yardage is great, this method cannot be applied with economy on residence work, silos on other structures with thin walls and where the amount of concrete to be poured is comparatively small, as the spouting system entails a somewhat elaborate and costly equipment, and the transfer or movement of the spouts to deliver concrete at the various parts of the building brings the placing cost to a prohibitive figure. A simple inexpensive equipment cutting out elaborate machinery would seem necessary. Milton Dana Morrill, the Washington architect, the inventor of the Morrill steel forms, has devised and developed a simple hoisting davit which would seem to fill a considerable need in the lighter forms of buildings; this davit is illustrated by sketch herewith shown.

Plan of a corner section of the steel forms is illustrated showing this davit as an attachment to be moved or raised as the work progresses. A two-inch pipe upright is clamped by wedge connections to the corner plates, being arranged to swivel and to turn easily. Attached to the pipe upright is a swing-arm or boom made up of two light channels with ball bearing sheaves for hoisting rope from the end of this swing-arm; a knotted rope or guy passes through the notched head of the pipe, permitting the lowering or raising of the arm or boom. This davit swings out upon the mixing board or to the mixer.

The heavy sewer buckets, containing 16 quarts, are filled and hoisted, after which the davit is swung to the desired point and the concrete dumped into the forms. The hoisting rope passes through a snatch block pulley attached near the ground; the bucket is raised by hand by a friction drum on the mixer or by horse. After the pouring is completed at one point, this davit is unclamped and moved, being attachable at any point. This hoist is of such a simple, inexpensive type that several of these davits can be utilized if desired, simultaneously raising the concrete at various points.

A light system of interior scaffolding is supported on scaffold angles, nailed to 2x4 uprights; these angles are below the forms themselves. This permits the steel forms to be easily swung up in tiers of from 10 to 15 plates, at one operation, thus permitting two or four men to raise and place a section of from 40 to 60 feet of forming in a few minutes. The outside forming is swung up in the same method by this ingenious system of swing arms. After the forms are raised, additional scaffold angles are attached, the scaffold planking replaced above ready for pouring the next tier.

As all connections on the forms themselves are of the wedge type unskilled labor is largely utilized, and by these simple wedge connections the forms come automatically and rigidly into line. At each corner where four plates join a pipe separator is utilized through the wall. These pipe separators are knocked down and removed as soon as the forms are raised and the holes are pointed. By this method the plates are removed from the wall upon the day following the pouring. At this time, it is possible to go over the exterior surface with a wire brush, exposing to view the aggregate or to float this with sand and cement, leaving a plain stucco surface.



CONTROL OF THE WILD WATERS

Flood Prevention Is a Permanent Problem Until the Work is Completed.

The forms being entirely of pressed steel leave a light raised joint or mark dividing the walls into two-foot panels. On many buildings this has been left forming a somewhat decorative effect. At each story height the walls are offset on the inside, giving a light ledge for support of the concrete floor slab or for the wood joints if such are employed, short reinforcing bars being first bedded in the wall with the end projecting upwards. After the removal of the forms, the ends of these bars are bent out, the joint placed and this wall anchor is tied to the beams by staples.

Certain plates for corner adjustment have perforations where the metal is partly punched through. By this arrangement these corner plates are permitted to lap past, thereby the equipment is made adjustable to buildings and walls of various sizes and dimensions, no special size corner or filler plates being employed.

Window and door frames are built out to the thickness of the wall, and dropped into the forms, a saw cut being made back of the frame into which is set a tin or galvanized iron strip. The concrete is poured about this, making a joint proof against air leakage, which might afterwards result from shrinkage of the wood frames.

Where interior furring is desired, wood blocks with a nail projecting downwards are dropped into the concrete at the end of the day's pouring. To these blocks vertical furring strips are afterwards attached.

The steel forms are of one-eighth inch thickness, pressed into flange sections two feet square, and are practically indestructible and can be used a hundred times. These are thoroughly cleaned and oiled each time they are raised, which gives an extremely smooth finished surface. By this swing-arm system, an equipment for any height wall need only be two tiers, or four feet, in height, and the average cost for placing, removing and cleaning forms is reduced to one-half cent per superficial foot of forming.

The waste in lumber and labor on wood forms is great. With steel forms the material bills are cut out and the interest on the investment is the only charge to be made against each building.

The San Diego Cement Pipe Company has been organized at San Diego, Cal., where a yard has been started at Evans and Everett streets. The company is engaged in the manufacture of concrete pipe and culverts for sewer, drainage and irrigation purposes, and is also putting on the market side lines of concrete specialties, ornamental lamp posts, flower pots, wash trays, etc.

A shipment of Waterproofing Paste, Stonetex, Aseptico and Wall Size, leaving the Detroit plant of the Trus-Con Laboratories for United Engineers, Ltd., Singapore, Straits Settlements. This is only one of many export shipments made from the laboratories during the past few weeks.

These shipments of the Trus-Con Laboratories' waterproofings, dampproofings and technical paints have been sent to Durban, South Africa; Berlin, Germany; Cuba, Norway, South America, India and, in fact, to almost every country under the sun.

An experimental section of concrete highway is being built in West River Side Drive, Indianapolis, for Carl G. Fisher, one of the promoters of the Ocean-to-Oceans highway project. The work is being done under the supervision of Blaine Miller, former city engineer of Indianapolis, assisted by C. D. Franks, assistant engineer of the Universal Portland Cement Co., Chicago, who is acting in an advisory capacity.

This concrete road section will be similar to the roads in Wayne county around Detroit and is being built by Mr. Fisher to demonstrate to his own satisfaction the advantages and serviceability of this type of country roads.

The building of probably the largest grain elevator in the world is under way in Argentine, Kaa. It will be built by the Missouri Valley Bridge and Iron Works Company for the Santa Fe at Argentine. The elevator will have a capacity of 2,750,000 bushels of grain. It is to be leased by the Santa Fe to the Armour Grain Company of Chicago. For the construction 20,000 barrels of cement have already been ordered. There will be 72 concrete tanks, each 80 feet high, with a steel structure above them 14 feet high. Each tank will hold 26,000 bushels. In the center of each group of four there is to be a smaller bin holding 12,000 bushels. All of the enormous bins will be under one roof. To distribute the grain will require 5,000 feet of rubber bolting 36 inches wide, which costs about \$3 a foot. It is expected that the elevator will be completed in six months by working night and day.

A letter from John A. Fox, secretary of the Mississippi River Levee Association, calls vividly to mind the flood conditions existing slightly over three months ago. In the rush of things that have to be done and in the money-getting of this glorious open season, let us not forget to take care of flood prevention of the future. Mr. Fox makes the following remarks with regard to the recent flood which passed down the Mississippi river, where he could see the Father of Waters from his office windows:

"Extending from Cairo, Ill., at the mouth of the Ohio river, to the Gulf of Mexico, is the main trunk of the Mississippi river. Into this main channel are led the waters from 44,000 miles of tributary rivers, bearing the floods from thirty-one states and a part of Canada.

"The states of Illinois, Missouri, Arkansas, Kentucky, Tennessee, Mississippi and Louisiana lie adjacent to this main body of the river and parts of these states comprise the 20,000,000 acres that constitute the alluvial valley of the Mississippi river. This alluvial region is about 700 miles in length, extending from just below St. Louis to the Gulf of Mexico, and averages from forty to sixty miles in width. Through this alluvial valley the channel of the great river meanders in a tortuous course with a total length of 1,066 miles, a depth of from sixty to one hundred feet, and widths varying from one to two miles between banks. When a flood like the one that came down this spring is poured into this lower river precipitately, because of the rapid run-off above due to advanced methods of drainage now in effect throughout the thirty-one states comprising the drainage basin, the natural banks are overflowed by the water and it must be held within the channel by earth embankments or levees.

"These levees now hold back the river throughout its entire length, from Illinois and Missouri to below New Orleans. They are by no means complete, although they have been constructed to their present height and cross-section at a cost of about \$100,000,000, two-thirds of which has been furnished by the lands protected and one-third by the national government. If they were now completed to the height and cross-section prescribed by the United States army engineers when the problem of flood prevention was undertaken, there would be no fear of these floods in this lower region, but two hundred and thirty-two million cubic yards of earth must be put in place before they will be completed, according to the plans of the Mississippi River Commission of Engineers. I mention this because so many people, without knowing the facts, are prone to condemn the plan for controlling the floods by levees as a failure. We might just as well condemn the Panama Canal as a failure if we tried to pass ships through it with 232,000,000 cubic yards of earth still to be removed from Culebra Cut. The plan to hold the flood waters in the main channel by levees is not only the best method of solving the problem, but it is also the cheapest and most practical.

"It is estimated by the Mississippi River Commission that the entire levee system can be completed for \$58,000,000, and that for about \$80,000,000 additional the banks can be revetted and a permanent navigable channel established for commerce."

The completion of the Mississippi levees and the protection of the completed levees by means of wire mesh reinforcement and cement mortar solves the most important internal problem that the United States government has ever had to contend with. From the first organization of congress the control of the Mississippi river has been a constant source of concern as well as a constant source of expense. The reclaiming of alluvial lands by the control of the great river will create a value amounting to more than ten times the cost of the improvement, and even if this were not so—which is fortunately the case—the improvements will have to be made and the great river controlled because of the annually recurring damages which in years to come will amount to more than the net increase in the wealth of the nation, and in finishing the control of the Mississippi the protection of the opportunities of future generations of American citizens is being safeguarded in the most necessary and essential way.

The experience of the past spring has taught us a new lesson and simply because summertime has come and there is no great flow of water in the minor rivers, creeks and streams, it is not the time to idly wonder if the floods of last spring will be repeated next year. Indeed, they will be repeated—probably with greater force each and every year and possibly more than once every year, because the modern idea of draining farms is still growing and the outfall of the drains are being augmented each season, so that the neglected

riders and little creeks have all become a positive and constant menace to life and property.

The states that suffered by the floods this spring have not taken adequate steps to prevent the recurrence of the disaster of 1913 and it is quite possible that some of the states will have to be spanked several times before they wake up; but it is noticeable that the city of Dayton, Ohio, which was one of the greatest sufferers in the last flood trouble, has gone at the matter in a very intelligent manner and intends to protect itself from future damage and future danger, by the expenditure of the necessary amount of money to obtain such an end, and do it in the most scientific and sensible manner.

Of course the repairing of flood damages entails the use of enormous amounts of cement in the shape of permanent concrete improvements, which is another way of saying that it piles up indebtedness for future payment, and if these improvements are put in in such an intelligent way as not to require replacement again for a generation or more it will be economically done; but if flood prevention is viewed and acted upon in a haphazard and indefinite kind of way it will mean such a drain upon those notoriously prosperous states as to eventually plunge them into the direst degree of poverty.

Two of our nearest friends in Dayton have recently given us a glimpse of conditions as they are now and a picture of the attitude of the energetic and sensible people of Dayton. It is a remarkable fact that of more than five hundred communities that were damaged and well-nigh destroyed, in Dayton alone do we find any intelligent, conscientious and able undertaking to prevent future floods. At least no other has been brought to our attention. The following letters, respectively from Howard Arnold, president of the Dayton Builders' Supply Co., and John W. Eichelberger, of T. D. Eichelberger's Sons, are typical of the feeling of Dayton's business men:

"I am pleased to enclose herewith a small pamphlet, giving a few facts as to why we raised two million dollars.

"The Dayton Flood Prevention Committee has engaged the services of A. E. Morgan, of the Morgan Engineering Company, of Memphis, Tenn., and Mr. Morgan will personally superintend all of the work. He has been commissioned by the Dayton committee to make a plan from the head waters of the Miami river, Mad river and Wolf creek to the south boundary line of Montgomery county. As soon as this plan is completed we will know exactly what is best to do in order to handle the waters above, in and around Dayton.

"This committee is also working to organize the whole valley and eventually to get the whole valley to work upon one definite plan which, considered from every source, is the best for all concerned.

"After they have arrived upon a definite plan, federal and state aid will be solicited and no doubt with the proposition in this shape, federal and state aid will come much easier than if we had no working basis.

"We have raised two million dollars to back up our committee and any work that is called for to be done immediately by Mr. Morgan for the immediate protection of Dayton will be taken care of. We are not going to waste any money doing things that some people might think it would be well to do locally, but we are going to know what is to be done, what is the best to do, and then we are going to do it.

"We have also voted for the commission manager plan of city government, and with everybody in Dayton interested in its welfare we have the best chance ever offered any locality to have the best city in the United States.

"Mr. Morgan is in the field with his engineers at the present time and no doubt within the next few months the work will be started to give us permanent protection."

"I am pleased to advise that the sum of \$2,108,632 was raised in a week's time and it is remarkable, calling upon her own people, many of whom had lost thousands, and who so liberally signed their names for amounts to this fund. Financial men gave freely, as also men who lost their homes in the flood. Wage earners and, in fact, all subscribed their share, and the industries of the city increased the fund many thousands. 18,000 subscription cards were signed.

"Dayton is comparatively a small city, but she is rich. Though the flood wrought enormous losses, the wealth left is considerable. It was a hard time to ask people to subscribe to a fund, but it seemed the best possible time to raise it. Because of emergency, it was a herculean task and required desperate efforts to bring it to a successful end, and it demanded the utmost energy, of which all seemed endowed.

"We did not wait for federal or state aid and do not expect the March flood ever to be duplicated, but a repetition is possible. We have today the best engineers in the country working out plans to make our city and the Miami valley safe for all time to come, and we all feel it is economical insurance against destruction.

"The nation responded quickly and liberally to calls for help following the flood, and it clearly showed that we are living for each other and the betterment of mankind. I feel it my duty at this time to mention the fact that one of the noblest and grandest men ever born was willing to sacrifice his life and wealth for his fellow man, turning his immense plant, which very fortunately was not in the flooded district, over to the suffering people, feeding, clothing and giving shelter to thousands, sending food and clothing to homes, and there is now a movement started for the erection of a monument to his honor in the center of the city he was born in and loves so well. It is my wish that the day will soon come when we will all lay aside our business cares and celebrate the unveiling of this well-deserved monument we all owe to this good man, John H. Patterson, president of the National Cash Register Co.

"I enclose you one of the badges each person wore after subscribing to the Flood Prevention fund, and there were hundreds of them worn. When the large cash register, located on the court house lot, registered the two million mark, there was great rejoicing, bands playing and large parades of the rich and poor, who were in the same bread line during the flood.

"All of our factories have resumed, working full forces of men and some of them overtime. Merchants have restocked with a full line of new goods. The city is in a better sanitary condition than before the flood. The doctors report very little sickness, no epidemic of any kind having occurred, and everyone has instilled in them a desire for a better and bigger Dayton.

"It is sure to come as we are a city of over a thousand factories and our banks and building associations are the strongest in the country. All of the building supply men, whom you know well, suffered large losses, but all have resumed, and we are assisting one another in every way possible. The feeling of grasping and doing the other fellow has faded away entirely; live and let live is now in the minds of all dealers."

A pamphlet containing the following interesting facts in comparison has been issued by the Citizens' Relief Committee, of Dayton, which may serve as a suggestion to others similarly situated:

"The best flood prevention engineers in the United States are now in Dayton making surveys, gathering information and data for the committee. As quickly as possible they will submit plans, maps and specifications for such construction work as will prevent future floods. This fund will be spent by the Flood Prevention Committee in carrying out the plans of these engineers.



STATUE OF JESUS CHRIST, CHURCH OF BLESSED SACRAMENT, NEWARK.

"Three and one-half years' time, without interest, is granted in which to pay subscriptions.

"Dayton pays about \$600,000 annually in fire insurance premiums. Our loss on account of the flood is approximately \$128,000,000.

"Three years and one-half of fire insurance costs as much as this entire fund, which will insure us forever from another flood. Think about that.

"Why don't the city issue bonds for the money needed? Answer: The issuance of the large amount of bonds necessary would compel the city authorities to exceed the levy allowed by the Smith one per cent law for sinking fund purposes. Under these circumstances such bonds would have to be issued by a vote of the citizens, which would require a considerable length of time.

"By raising the \$2,000,000 fund as a voluntary gift not only will the tax rate in the city be materially lessened, but the city will be in a position to go to the state, and to the nation, and insist on their co-operation.

"No citizen escaped some loss through the flood even though he was not in the flood territory.

"A repetition would forever ruin this beautiful city and your property would be of no value, this property that you have worked for years to secure.

"We must make Dayton safe for all time to come. We might never have another flood, but we do not dare to take the chance."

CEMENT STATUES.

The Sibbel Studios of New York City have designed and executed the two ecclesiastical cement statues, photographs of which are reproduced in these columns. It can be readily seen that excellent work can be done with cement, and ecclesiastical sculpture of this material during the past year has become very popular.

The statue of Jesus Christ stands ten feet high and will rest on a bronze dome atop of the new church of the Blessed Sacrament at Clinton avenue and Van Nest place, Newark, N. J. The church is being built on elevated ground and the figure will be discerned from a considerable distance.

The Madonna will be placed on the wall of the school of Our Lady of Lourdes, 143rd street and Convent avenue, New York City. The statue is eleven feet high and an illuminated nimbus surrounds the head.

"For ecclesiastical purposes the demand for cement statues has increased during the past year," said Mr. McCarthy, director of the Sibbel studios, "and in that time we have executed more cement figures than in the history of the firm, which is now established some thirty years. A feature which is promoting the sale of cement statues is the fact that they weigh less than stone and therefore are acceptable to buildings whose construction would not support stone and other heavy materials. Cement statues are cheaper than stone and are just as durable. Many people also have the impression that they are stone figures. In the case of the statue of Jesus Christ which will rest on a bronze dome on the Church of the Blessed Sacrament at Newark, N. J., it was found that a stone figure could not be mounted as the weight would have been too great. We have received orders for cement statues from out-of-town points, including Baltimore, Md., Chicago, Ill., and in Ohio."

ILLINOIS CONCRETE NOTES

The Lynn & Salem Concrete Company, of Lynn, has been incorporated with capital stock of \$30,000. The incorporators are Andrew J. Sweetser, Pauline W. Sweetser and George S. Nograve.

B. L. Saul, of Auburn, and George Robertson, of Girard, have formed a concrete contracting firm.

The contract for three bridges in Rock Run township, Stephenson county, has been awarded to the Northern Steel and Construction Company, of Freeport.

H. B. Caldwell, of Havana, has entered the concrete contracting field.

The Peoria Trusswall Stone Manufacturing Company, of Peoria, has been incorporated with capital stock of \$25,000, to deal in concrete construction. The incorporators are C. P. Burt, Robert Hill and Fred E. Maple.

William Cummings, of Batavia, was awarded contract for a concrete bridge near Batavia, for \$2,970. Buck Brothers have sold their feed mill in Cuba and will devote all their time to concrete contracting and silo building.

Edward Deason, of DeSoto, was awarded the contract for three concrete bridges near Carbondale.

PITTSBURGH CONCRETE NEWS.

Pittsburgh, Pa., June 19.—Irvin & Witherow have recently secured the contract for building a reinforced concrete plant of the Bronze Metal Company of Meadville, Pa., which will cost \$50,000. This firm of engineers reports lots of business coming onto the boards, but says that bids are running very high, owing to the high cost of material and the continuous raise in the price of labor.

W. F. Trimble & Sons Company, of the North Side, have the contract for building the big shops of the Pittsburgh & Lake Erie Railroad Company on the South Side.

The United States Government will start at once to rebuild Lock No. 4 on the Monongahela river. It will cost over \$500,000 and will require at least three years in building. A large amount of cement and concrete will be used for this project.

The Duquesne Silica Products Company, whose offices are in the Diamond Bank building, is working 85 men at its big plant in Duquesne, Pa., up the Monongahela river. This company handles all the slag from the Carnegie Steel Mills in this district. It is having a splendid trade this summer and manufactures silica in any size from Dallas sand to four-inch slag.

Pittsburgh councils finally decided to amend their recent measure regarding the specifications for reinforced concrete work and which was so distasteful to reinforced concrete engineers of Greater Pittsburgh. After a committee of competent engineers had fully investigated the matter councils decided to base their regulations upon the standard code of requisitions adopted by the American Society of Civil Engineers last February.

The Concrete Products Company, which has been in business in Pittsburgh quite a long time, has lately reorganized with the following officers: C. L. McKenzie, president of the Pittsburgh Construction Company, president; W. E. Kimberly, treasurer; C. F. Duente, general manager. The company's plant is located on Neville Island and is now employing about 50 men. It manufactures concrete curbing, concrete sills, ornamental concrete coping and building work. In a short time the company proposes to start a new sewer pipe factory.

LOUISVILLE CONCRETE NEWS.

Louisville, Ky., June 20.—The market situation has offered little for comment, being steady during the past month. However, an increase is expected during the next four weeks, if business takes the spurt expected in some quarters. Should conditions remain about the same as at present, however, it is hard for concrete men to see how a stronger market can be expected.

Prospects for additions to the local building code



LOURDES' MADONNA, SCHOOL OF OUR LADY OF LOURDES, NEW YORK, N. Y.

were strengthened recently by the passage of a bill by the General Council, providing for an appropriation of \$350 for conducting experiments on which to base additional clauses. The idea originated with the Engineers' and Architects' Club, which will raise an additional \$150 for the experiments. Ossian P. Ward, City Engineer David R. Lyman and Assistant Building Inspector W. J. O'Sullivan are to conduct the experiments.

The Woodruff Brothers Company, which has been prominent in local building circles for the past ten years, though fairly busy at present, finds prospects revealing themselves too slowly to please it. A number of concrete jobs have been abandoned by the projectors and the company is preparing for a slight slump during the next month. Several residences going up in the eastern section of Louisville will provide some activity, however. The Woodruff Brothers Company has just completed a big concrete vault for Matt Irion & Sons, a well-known jewelry concern.

The National Concrete Construction Company is winding up work in Georgia, now putting the finishing touches on the Augusta brewery. President Jake Ohlischlager, of the National, will superintend the completion of the job in person, having left for Augusta. The National has several big jobs in sight.

Thomas & Whitton secured the concrete work on the new four-story reinforced concrete structure being erected by Wm. Schuff & Co. on Twelfth street. The tanning company will double its capacity, work on the addition having already begun.

Sidewalk work has continued to be a feature of the operations of the American Concrete Construction Company. Contracts calling for twenty-two pieces of work were secured recently by the company.

Demand for cement blocks is progressing nicely, and the Culley Cement Block Company is pushing that line successfully. The mother of John S. Culley, head of the company, is recovering from her recent illness, and now is believed to be out of danger. While Mrs. Culley's age was against her, she made a gallant fight for health and the concrete man is in good spirits over her better condition.

The Louisville Mausoleum Company has filed articles of incorporation, the capitalization being placed at \$125,000. C. F. Mohr, who recently came to Louisville from Nashville, Tenn., will have active charge of the company's business. Others interested are R. W. Cole and Henry Burnett. The company plans to manufacture crypts and mausoleums. The location of its plant, with other details, are yet to be decided. Community mausoleums have not as yet come into favor in Louisville, though a number have been erected in other Southern cities. A plan was recently set afoot for the erection of a concrete mausoleum in Cave Hill cemetery, but was rejected by the directors of that company after thorough consideration. Mr. Mohr, however, believes that there is a big field for that product. Concrete will be used largely in the work.

The Fulton (Ky.) Construction Company was given much space in the recent anniversary edition of the Fulton Leader, as one of the leading business enterprises of the bustling Western Kentucky city. The company is headed by R. H. Kelly. Mr. Kelly learned the theoretical side of the business at Kentucky State College, at Lexington, and has perfected the practical end by practice in Fulton and elsewhere. The Fulton Construction Company, while manufacturing cement blocks and other similar products, also does a big contracting business. Improvements in its plant were recently completed and it is now well equipped to handle work of importance.

MEMPHIS CONCRETE NOTES.

Memphis, Tenn., June 19.—C. D. Hightower & Son, at 586 Cox avenue, are making a line of cement grave vaults, porch columns and ornamental vases and are busy this season.

A. DeFranceschi, 751 Monroe avenue, is building up quite a nice contracting business on ornamental concrete work. He did the fancy finishings of this character on the Hessig-Ellis building.

The Miller Paving Company, at St. Paul avenue and Suzette street, now called the Chas. R. Miller Company, in addition to much paving work over town, have executed along cement lines a handsome swimming pool at the Y. M. C. A. Also a hand ball court at the Christian Brothers College. The last stands 26 feet high, 52 feet long with walls three inches thick.

Citizens of New Carlisle, Ind., have just voted unanimously for the construction of twelve miles of concrete highway. The Universal Portland Cement Co. is to write the specifications and the roadway will be nine feet wide with three-foot gravel shoulders. This work came as the result of an inspection of the concrete roads at Buchanan, Mich.



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Executive Committee

CANADIAN DUTIES AND THE CEMENT TRADE.

(From Our London Correspondent.)

London, June 12.—The announcement made by Mr. White, the Canadian minister of finance, in his budget statement a few days ago to the effect that in future the duty on cement imported into Canada will be reduced from 12½ cents per 100 pounds to 10 cents or 7 cents preferential, is a matter of considerable importance to the English branch of the industry. For years past strenuous efforts have been made by the leading interests in the British cement trade to improve their participation in Canadian business, but without very much success. In the meantime the demand in the Dominion has grown to such an extent that the Canadian Government has felt themselves bound to modify their tariff policy. This change has, British cement makers believe, been brought about by the exercise of great pressure upon the administration in addition to the obvious inability of the Canadian companies to meet the requirements of the situation, and represents the outcome of prolonged negotiations between the English cement interests and those in the Dominion. The net result is expected to be beneficial to both branches of the industry, as, in spite of increased imports, it is anticipated that cement prices in the Dominion will continue to improve.

KOSMOS ENLARGING PLANT.

The Kosmos Portland Cement Company is increasing its plant at Kosmosdale, Ky., bringing the capacity from 1,200 to 3,000 barrels per day. Ground was broken the 19th of May and it is believed that the plant will be turned over and be in complete operation before the 1st of January, 1914. The new plant will be modern in every particular. This includes the installation of the steam turbine in the power line and new boiler house equipped with stokers, new kilns, 8½x125 feet, and a new stock house over 400 feet long will be built on the east side of the I. C. R. R. The stock house will be of the latest design and equipped with the latest bag-filling machines. An entirely new quarry will be opened at King's Landing, Ky. The quarry will have a face over 1,000 feet long and 125 feet in height. A steam shovel will be operated in the quarry, and contract has been closed for a No. 12 crusher. A storage for crushed stone amounting to several thousand tons will be carried at this point at all times, and through a very well designed system of conveyors, electrically driven, a 500-ton barge can be loaded in two hours. This quarry will be one of the finest of its kind in the South.

The Tidewater Portland Cement Company of Maryland, which was recently awarded the contract for providing the city of Richmond, Va., with cement for the coming year, withdrew its bid and that city has in turn awarded the contract to the Old Dominion Portland Cement Company through its Richmond agents, C. P. Lathrop & Co.

ANNUAL MEETING OF THE AMERICAN SOCIETY FOR TESTING MATERIALS

The American Society for Testing Materials will hold its 16th annual meeting at Atlantic City, N. J., June 24-28, 1913, with headquarters at the Hotel Traymore.

An interesting program of addresses has been prepared by the committee in charge. A goodly portion of the convention will be given over to papers and discussions relating to reinforced concrete construction, and various learned experts will deliver addresses pertaining to standard specifications, tests, aggregates, etc.

Friday, June 27, there will be an interesting session on ceramics and road materials.

The July issue of Rock Products will contain a full report of the convention insofar as the interests of the industries represented by it are concerned.

TEN STATES PRODUCE BULK OF PORTLAND CEMENT.

The production of Portland cement in 1912 in the United States was 82,438,096 barrels. This production was reported from 24 states, the first ten states, namely, Pennsylvania, Indiana, California, New York, Missouri, Illinois, New Jersey, Michigan, Iowa, and Kansas, given in the order of their importance, reported 69,682,321 barrels, or about 85 per cent of the total. These states ranged in production from 26,441,338 barrels in Pennsylvania, or over 32 per cent, to 3,225,040 barrels in Kansas, or about 4 per cent of the total. Indiana, the second largest producing state, reported 9,924,124 barrels, or 12 per cent, and California, the third state, reported 5,974,299 barrels or over 7 per cent of the total. These first three states reported over one-half of the total production.

CEMENT AND BRICK MANUFACTURING IN NORWAY.

The use of cement, especially in foundation work, is rapidly increasing in Norway, and during 1912, with high prices demanded by foreign manufacturers, the local industry had a very prosperous year. For the large plans at Slemmestad a great amount of new machinery has been ordered. Brick manufacturers, of which there are twelve in Norway, with an output of 27,500,000 bricks, had a fairly good year, but the industry is now less important than cement manufacturing. Until very recently the imported cement was so expensive as to preclude its use, but with the establishment of local plants it has gradually become cheaper. The use of reinforced concrete is also beginning to be general in the large cities of Norway.

RUSSIAN CEMENT INDUSTRY DEVELOPING.

(From Our Russian Correspondent.)

St. Petersburg, May 28.—The Russian Cement Works "Wolhyn" raised for 1912 the distribution of 10 per cent declared in respect of 1911 to 14 per cent, on a capital of 1,280,000 roubles. A few months ago the capital of the concern was increased, under the auspices of the St. Petersburg International Bank of Commerce, to 4,000,000 roubles. The production for 1912 advanced from 300,000 tons to 400,000 tons, and it is expected this year to reach 700,000 tons, while for 1914, after completion of the extensive works at present in course of construction, an output of not less than 1,500,000 tons is anticipated. The company is stated to have concluded with the military authorities of Warsaw and Vilna a contract, spread over eight years, for the supply of 5,000,000 tons of cement.

PUZZOLAN AND OTHER SLAG CEMENTS.

Puzzolan cement was manufactured during 1912 at three plants in the United States—at North Birmingham, Ala., Struthers, Ohio, and Sharon, Pa.—and "Collos" cement at Buffalo, N. Y., according to the United States Geological Survey. The output of puzzolan and "Collos" cements in 1912 was 91,867 barrels, valued at \$77,363, compared with 93,230 barrels, valued at \$77,786, in 1911. This represents a decrease in quantity of 1,363 barrels and a decrease in value of \$423. The average price per barrel of these slag cements in 1911 and 1912 was 83.4 cents. It is remarkable that in 1912 the average price of slag cement was, perhaps for the first time, 2.1 cents higher than that of Portland cement. One reason for the present high average price of puzzolan cement is that a considerable quantity of this product is of a light color and is considered to be nonstaining and consequently is sold at a much higher price than ordinary gray or brown cements.

SERVICE IMPORTANT FACTOR WITH SECURITY CEMENT CONCERN.

The word "Service" is inscribed as deeply in the policy of the Security Cement and Lime Company, Hagerstown, Md., as any of the sterling principles so firmly adhered to by that concern and which have placed it on a high pinnacle in the esteem of its customers and competitors alike. H. B. Warner, general sales manager of the Security company, is ever on the lookout to conscientiously render good service, as well as delivering goods of high quality, to those who favor his firm by their patronage. The letter below, which was received by the Security Cement and Lime Company from the B. & O. railway and which the Security company in turn has reproduced and distributed broadcast, is but one evidence of the service which the company is at all times anxious to and capable of performing. Supplementary to the railroad company's communication the company has written to the dealers, submitting the following advice:

"The attached notice is undoubtedly a forerunner of car shortage, which will soon be on us.

"It should receive your serious thought so that you in turn can impress upon your customers the necessity for them to anticipate their requirements as far ahead as possible.

"We sincerely hope you will thoroughly appreciate the import of this notice so we can both make, rather than lose, money this year by having your orders in early.

"Don't lay this aside. It should have your immediate attention."

Efficiency in Car Handling.

(Copy of circular issued to shipper by the B. & O. railway.)

"The movement of freight tonnage is heavy and demand for empty cars indicates it will become heavier.

"To avoid car shortage it is necessary that greater efficiency be secured from freight equipment.

"Careful check of cars received from mines unloaded with coal have shown that equipment is not being loaded to its full physical carrying capacity, and the same applies to open cars loaded with other commodities.

"We solicit your co-operation towards loading cars to capacity. Every ten cars so loaded means a car saved.

"You can help us."

BYTHEWOOD ACCEPTS NEW POSITION.

R. M. Bythewood, who has been in the Southern branch office of the Alpha Portland Cement Company at Savannah, Ga., for the past three and a half years, severed his connection with that company on June 1 to take up the position of assistant sales manager of the Clinchfield Portland Cement Corporation, office and mills at Kingsport, Tenn.

Mr. Bythewood has had a large experience in the Savannah office, has traveled the territory, and is thoroughly familiar with conditions in that field. He goes to the Clinchfield Corporation because of the larger field and opportunity, and with the expectation of making the cement business his life work.

Being a Southern man, Mr. Bythewood believes in the South, and desires to put forth his best efforts in development there, rather than in other fields.

The Clinchfield corporation is one of the largest mills in the South and has a most enviable reputation in the cement industry. Their plant is most modern and up-to-date and their product is known as "The Acknowledged New Standard of the South."

PRODUCTION OF NATURAL CEMENT.

Natural cement was produced in 1912 in 15 plants distributed in nine states, according to the United States Geological Survey, there being no change in the situation compared with 1911 except a decrease in production. The output during 1912 amounted to 821,231 barrels, valued at \$367,222, compared with 926,091 barrels, valued at \$378,533 in 1911, a decrease of 104,860 barrels, or 11.3 per cent, in quantity, and of \$11,311, or 3 per cent, in value. The average price of natural cement at the mills in 1912 was 44.7 cents a barrel, compared with 40.9 cents in 1911.

Bellingham, Wash., May 19.—Everything is about in readiness for the starting of the new plant of the Olympic Portland Cement Company on the outskirts of this city. This plant is financed by English capital and the sales agents are Balfour, Guthrie & Co., of Seattle.

The Beaver Portland Cement Company has been incorporated at Portland, Ore., with a capital stock of \$600,000, by J. C. Burch, Wm. Schrupp, O. S. Woody and others, for the purpose of building a cement plant at Gold Hill, Ore.

CHICAGO CEMENT NEWS.

Chicago, Ill., June 20.—Conditions this month in the cement trade continue excellent. Shipments are exceedingly heavy and the demand is large enough to satisfy the most sanguine of manufacturers of cement this year. Indications early this year that consumption would eclipse any previous year's record have been practically verified by the demand during the past six months. Conditions in the trade are exceedingly gratifying and a spirit of optimism pervades the industry. No attention is paid to Wall street or the croakings of pessimists concerning the influence tariff legislation may have on business, as business in the cement trade booms along, as it has not done for the past two years. There is an immense amount of work in sight which will be done this summer and fall, construction and repair work of railroads especially being far in excess of that of last year. Prices are well maintained and firmer than they were thirty days ago. Some fears are entertained of a car shortage next month and dealers are urged to lay in as heavy a stock as possible at an early day which is meeting with ready compliance. The outlook for the coming summer and fall months unquestionably denotes that manufacturers of cement will have their hands full to supply the demand that is pouring in on them.

Norman D. Fraser, president of the Chicago Portland Cement Company, said: "Everybody in this part of the country believes that this will be an excellent year in the cement trade. In confirmation of this belief we find that shipments have been decidedly heavier and the demand noticeably greater than last year. The quantity of work in sight to be done this year is much larger than usual including that of construction and repair work of railroads all indicating that the consumption of cement will be far greater than last year. Conditions in the trade are healthy and the demand most gratifyingly brisk with prices stronger than they were in May. Considering everything the outlook is very promising."

B. F. Affleck, general sales manager of the Universal Portland Cement Company, said: "The demand is plenty large enough to satisfy everybody in the trade and shipments are heavier than ever. Prices are very well maintained. A month ago in some quarters concessions in prices were made which have ceased entirely this month. There is a great deal of work in sight which will demand large quantities of cement this summer. No attention is paid to Wall street business moving along more briskly than last year. The outlook for the summer hardly could be better."

Harold M. Scott, western sales manager of the Lehigh Portland Cement Company, said: "The demand for cement is remarkably good and shipments which were heavy received a fresh impetus in the last two weeks. Prices are very firm and strong with a tendency to higher levels. There is lots of work in sight for this summer. The Wall street flurry has had no visible effect on the cement trade in the middle West and everything is lovely and conditions healthy. Brisk times are in prospect for the summer months."

E. L. Cox, general sales agent of the German-American Portland Cement Works said: "Shipments which have been heavy during the past two months, very materially increased within the last ten days. The demand remains good and steady. There is an immense amount of work in sight which will be done this summer and fall very much greater than last year. Prices are firm and indications are that they will be advanced in July. There are indications of a car shortage next month and everybody is advising the trade to carry as heavy a stock as possible. Business is good and the outlook could not be better for splendid business this year."

At the offices of the Marquette Cement Manufacturers Company, it is reported that conditions in the trade are gratifyingly healthy and the demand for cement greatly exceeding that of the corresponding period last year. Shipments are heavy and increasing with every day. There is lots of work to be done this summer demanding large quantities of cement. The situation in the cement field is fine this season.

The System Magazine for June in its "Players in the Great Game" articles contained a lengthy mention of Gordon Wilson, assistant secretary of the Universal Portland Cement Co. The author of the article on Mr. Wilson touches upon the latter's work in educating cement users to take care if cloth cement sacks, in standardizing the practice among the cement manufacturers in regard to the handling of empty cement sacks and in advocating the shipping of cement, bulk instead of cloth sacks in a large class of concrete work where bulk cement may be used easily and economically.

AWARDED LARGE CONTRACT.

San Francisco, Cal., June 20.—The principal feature in the cement market of late has been the letting of large contracts for public work, and quite a stir was created by the placing of the state cement contract, for use in the highway system, with the Old Mission Portland Cement Company. The contract is one of the largest ever let in California, being for 1,500,000 bbls., deliveries to be made during a period of 20 months beginning March 1, 1914. There was considerable bidding for the business, and the price which took the contract was unusually low, being \$1.15 per bbl., compared with a range of \$1.30 to \$1.49 recently paid by other state departments. The Old Mission Portland Cement Company's plant at San Juan, Cal., is not yet completed, but the lime kilns are about ready for operation, and the rest of the machinery is ready for installation. J. C. Kemp van Ee, head of this company, is now in the East, accompanied by the manager of the plant, investigating the latest processes of cement production, and on their return the plant will be rapidly carried to completion.

Orange county, Cal., which is working on a good roads project, has awarded a contract for 100,000 bbls. of cement to the Riverside Portland Cement Company at \$1.35 per bbl. The county is also in the market for 3,000 tons of rock, 30,000 tons of gravel and 20,000 tons of sand, and has purchased a lot of crushing and handling machinery.

The Puget Sound Cement & Lime Company of Seattle, Wash., has been incorporated with a capital stock of \$3,500,000, by V. C. Coxhead, A. E. Griffiths, and others.

As the result of an investigation by the State Railroad Commission, reductions have been ordered in cement freight rates to points in the San Joaquin valley from Cement, Cowell and Napa Junction, three of the most important cement shipping points in northern California. Some of the reductions are as follows: To Los Banos, \$2.15, old rate \$2.40; Modesto, \$1.70, old rate \$1.75; Merced, \$2.20, old rate \$2.60; Fresno, \$3.20, old rate \$3.60; Reedley, \$3.30, old rate \$3.80; Exeter, \$3.45, old rate \$4.20; Porterville, \$3.50, old rate \$4.40; Visalia, \$3.40, old rate \$4.20; Tulare, \$3.40, old rate \$4.20; Bakersfield, \$3.60, old rate \$4.60; Hanford, \$3.35, old rate \$4; Dinuba, \$3.35, old rate \$3.80.

The plant of the New Castle Portland Cement Company at New Castle, Pa., was damaged \$20,000 by a fire last month. The management has taken steps to install a makeshift arrangement to tide the company over its busy season until repairs can be made.

A petition to the Illinois Grain & Railway Warehouse Commission for tenth-class freight rates for Portland cement shipped in bulk was made by the Universal Portland Cement Co., during May and was granted. This is a formal recognition of bulk cement, placing it on an equal basis with sacked cement.

The Mankato Cement Works at Mankato, Minn., suffered a \$50,000 damage from fire on June 9th. The plant was partially covered by insurance. Immediate steps have been taken by the management towards reconstruction; a large force of men have already been put to work hauling away the debris, and the new mill machinery will be ready to be set up within the next two or three weeks.

In the little circular, "Build of Concrete," the Texas Portland Cement Company, Dallas, Texas, show a few illustrations of manufacturing plants built entirely of reinforced concrete. In the case of the Postex Cotton Mills and Power House at Post, Texas, all structures are of reinforced concrete, the windows being steel with wired glass. Forty-two thousand and twelve sacks of "Lone Star" Portland cement were used in the construction. Plants thus constructed are fireproof, storm proof, wear proof and everlasting.

The Dugan Engineering Company has recently been incorporated under the laws of the state of Kentucky. The president of this company is C. M. Dugan, Jr., who for a number of years was general manager for the Kosmos Portland Cement Company. They will have their offices on the sixth floor of the Equitable building, Louisville, Ky. The Dugan Engineering Company will act as consulting and construction engineers and will specialize in the design and reconstruction of cement plants, quarry plants and power plants. They, at the present time, have a contract for the new plant of the Kosmos Portland Cement Company, which is being built at Kosmosdale, Ky.

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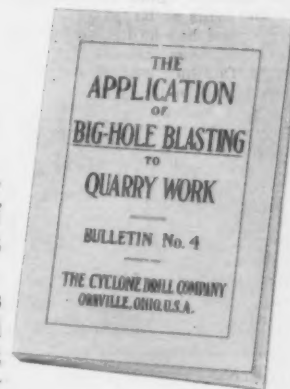
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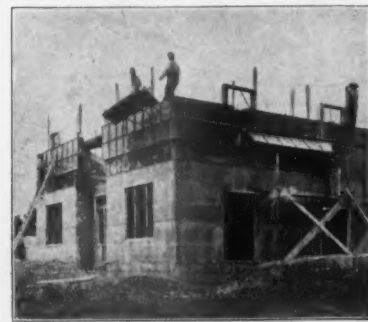


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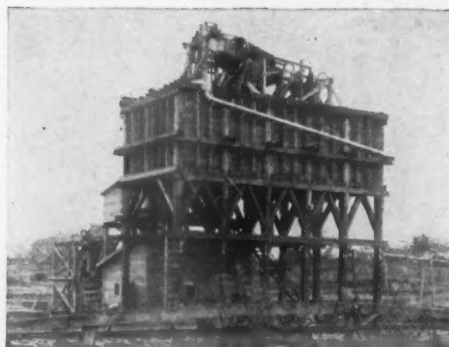
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QUARRIES

QUARRY PRODUCTS BY CANAL.

When the Illinois and Michigan canal was completed in 1848 the town of Chicago consisted of a group of canal contractors' camps and a little hamlet at the mouth of the Chicago river. All of the buildings, without exception, were mere wooden boxes upon wooden stilts driven down into the mud; for throughout the territory which makes the central part of the city rock foundation is more than 100-foot average depth from the surface. The place where the city now stands was a swamp, being under the water of Lake Michigan three or four months out of each year.

Canal traffic brought with it merchants and manufacturers to handle the raw products that came from the farmers of the entire Mississippi basin of that period, and as if by magic the city began to grow as one of the wonders of the world of the nineteenth century.

In excavating for the canal the government engineers found the rock cut twelve miles long which composed the dividing ridge or backbone of the continent, separating the waters which flow into the Great Lakes from those which flow into the Mississippi river, and this great continental divide was only seventeen miles westward from the lake.

The need of stone for foundations, future improvements and for many other uses to transform a bog into a hard-paved city made this rock cut an important factor in the building of the early Chicago. Lemont, the top of the dividing mountain, became the center of the quarry activities, and it is said that in the year 1860 the quarry operations supplying Chicago with stone for curbing, paving, foundations and for street improvements was the largest in the world, employing at that time no less than 7,000 men in the actual quarrying operations, and this activity continued up to within very recent years.

But of all this activity only one concern remains in the business, still quarrying the beautiful buff, self-cleaning limestone and bringing it into the city of Chicago by canal boat, as has been done from the start. This is the Lemont Limestone Company, whose office is located in the Chamber of Commerce building and whose quarries and crusher are located in Lemont in about the center of the mother lode of the rich Niagara limestone which is still so prominently noticeable in many of the best buildings of the great city of Chicago.

The Lemont Limestone Company is a reorganization of a previous existent concern, beginning operations in 1896 and consisting of S. B. Briar, George Bodenschatz, H. Getz and C. Brown. The quarry operations are conducted by H. S. and Peter Briar, sons of the president of the company—two young men who have been brought up in the business and who understand handling, crushing and delivering of quarry products as a sixth sense.

Our artist visited their quarry operations recently with a camera and made a picture of the canal boat fleet just getting up steam to start for Chicago,

twenty miles away. Another illustration shows the level ridges of stratified limestone from which the famous buff rubble and dimension stock are taken, and the steam shovel which does all of the stripping ahead of the quarry workers. No dynamite is used in connection with the quarrying of these ledges. Plug and feather drilling slices off the stone with ease and it is piled upon six-cord quarry cars and transported to the loading dock at the canal front by means of a dinky locomotive.

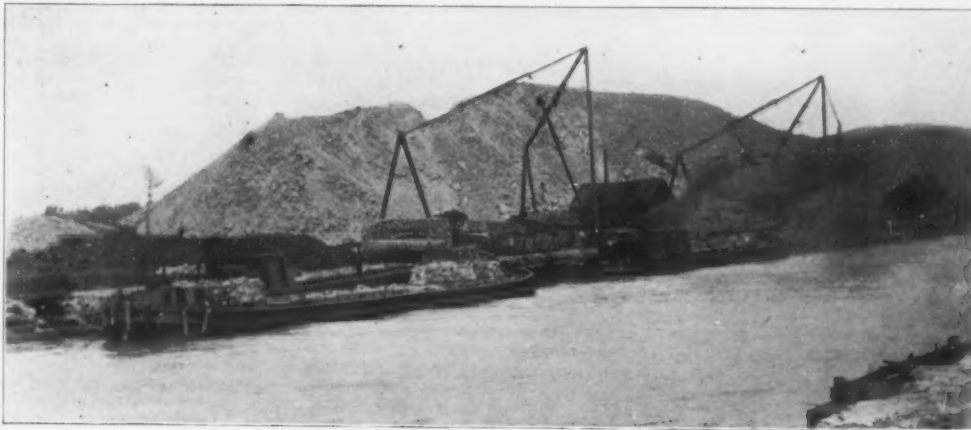
The crushing plant is equipped with a Gates 7½ K crusher and two McCulley 3's, and has a bin storage capacity of between five and six yards of crushed rock. The rock is drawn from the bins into wagon boxes and loaded by means of derricks to the decks of the barges.

When the boat arrives at destination another derrick sets the box ready loaded with crushed rock upon the running gear of the wagon which teams it to the point of delivery in the city. This minimizes the amount of handling and gains the advantage of delivering the wagon boxes loaded with crushed rock at no more than forty to forty-five cents per ton, indi-

cating that where water transportation is available and properly equipped the extension of the quarry business is a matter of concentration and study and within the reach of any energetic concern with the desire to expand its operations.

F. H. Fear, George J. Finck and J. D. Ohrt of Burlington, Iowa, have secured control of the Biggsville Crushed Stone Company of Biggsville, Ill., and will conduct the business from the office of the Cave Coal Company in Burlington. A force of about twenty men will be employed in quarrying and crushing rock for building and fertilizing purposes.

Application was made on June 26 for a charter for the Annville Limestone Products Company, Annville, Pa. The incorporators are Albert Herr, of Annville; S. P. Light and C. T. Barr, both of Lebanon, Pa. It is the purpose of the incorporators to quarry and sell stone and limestone and manufacture and sell lime and other products with which the stone enters into combination. S. P. Light is attorney for the company.



CANAL BOAT FLEET OF LEMONT LIMESTONE CO. AT THE QUARRY DOCK.

the nearest water front to its point of final delivery.

The Lemont Limestone Company does a flourishing business as the only representative of the enormous industry which once existed between Chicago and the Lemont quarries. There are other operations in the same district conducted by the Great Lakes Dredge & Dock Company, who operate principally in the spoil banks of the new drainage canal, carrying out cargoes of rip-rap for lake front manufacturers at various parts of the Great Lakes with little or no connection with the commercial stone proposition. There are several other concerns which also operate in supplying crushed rock to the Chicago market.

The illustrations are particularly interesting to experienced quarrymen as showing the survival of the economy of delivering quarry products by canal boat, and further interesting from the fact that at a recent committee meeting of the Illinois legislature the information was developed that quarry products with canal transportation could be delivered three hundred miles distant from the quarry upon a freight rate of

The plant of the William Penn Limestone Company at Millroy, Pa., was badly wrecked lately. A battery of ballast had been put in on the base of the cliff and when the dynamite exploded it blew outward instead of downward. The engines and machinery were torn from their anchor and thrown over an embankment.

The Arkansas Lime Company, Ruddells, Ark., is rebuilding its entire limestone plant and constructing everything possible of concrete. The company is simplifying the operating end of its business to the greatest extent. The ground limestone department of that concern is an entirely new departure, but it promises soon to become the most important of its products. The company has installed two oil-burning engines, a hammer pulverizer and a 40-ton fan with cyclone collector. The output is about 60,000 barrels of burned lime and 10,000 tons of ground limestone.



CRUSHER PLANT AND QUARRY, LEMONT LIMESTONE CO.



RUBBLE AND DIMENSION STONE LEDGES, LEMONT LIMESTONE CO.

ROAD BUILDING FACTS

Modern Equipment and Organization Have Taken the Place of Disinterested Labor.

In the state of Colorado the highway department, working with the assistance of the legislature, has accomplished some strides in road building which for that little state and the amount of traffic that it has piles up a very respectable showing. The legislature at its session two years ago provided for the use of convict labor in the building of the roads of the state upon what has been called the "honor system"—that is to say, the short-term convicts are put into road camps and work steadily on the roads, and receive a credit for good behavior and putting in a good, steady day's work. The "honor" part of it consists of honor on the part of the state in giving them a chance to work out their own salvation by shortening the term by which they have been condemned to penal servitude, and honor on the part of the convict to stand by the job and put in the hours profitably at road building.

The reports from Colorado indicate that this has worked well, for very few if any of the convicts have made any attempt to run away and the road improvement is said to be something remarkable. Now Colorado is one of those new states where the road building idea is just about as attractive as a moving picture show, because so little is known about roads and almost any ditched trail is considered to be a very remarkable improvement. In going back to the returns, the state of Colorado seems to have been successful in making some use of her convicts to some purpose in the road building line, but that is no reason to suppose that the same method would produce anything like the same results in Illinois, Indiana, Ohio, Pennsylvania, New York or any other state where road building is entirely a different proposition.

The security against the convict running away in the state of Colorado may consist largely from the fact that the convict camps are 30 to 50 miles away from the nearest town, with very little that resembles human sustenance to be found between the camp and the town, and it is not attractive even to a convict to cover such a distance without food and water—with emphasis on the water.

The isolated convict camp in Colorado becomes a community of interest of itself and the freedom, good food and sanitary conditions are reasonably attractive to a body of men who are all in the same boat as far as moral and social standing are concerned. No such camps could be erected in more populous states where the social comparison would bring odium upon the convict by contact with people who pass over the roads continually and even by look or sign communicate to the laborer that he is a convict performing his penal servitude. Those same convicts who have worked, as reported, faithfully for the state of Colorado would not serve a single week in Indiana, Ohio or Pennsylvania, but would make their getaway with very short shrift.

The writer was down at Springfield, Ill., a few weeks ago when the Tice measure was under consideration, and the representatives of almost a hundred different good roads organizations were present, boosting the road work. The delegates in a body visited the governor and he made a little address to them in which he mentioned the good results which had been obtained from convict labor in Colorado by the use of the honor system, and stated that he hoped before his term of office expired to see great progress made in the same line in the state of Illinois by the use of the short-term convicts from the penitentiaries at Joliet and at Chester. Governor Dunne's remarks were applauded when he went on to say that the road material was being manufactured at both of the penitentiaries by convicts and that the material was being largely used for improvement of Illinois' roads.

Down in Ohio last winter there was considerable talk about the use of convicts from the Columbus penitentiary for running a rock crusher to manufacture road material and also to use the convict labor in spreading the macadam, in digging the ditches, in making the grades and building the bridges, and undertaking the whole road construction of the state. The Pennsylvania legislature had very little to say on the subject of convict labor for road work, and the New York legislature did not even have a mention of such an idea. The use of convict labor was little talked of at Indianapolis, although there were a few rural members who felt that the convicts from Michigan City

and Jeffersonville might be employed on the roads and in the state quarries to better advantage than by coming into direct competition with free labor by manufacturing articles which are the means of support for a large number of the cities of the state.

Now looking over this collection of facts one realizes a condition, viz., that those who are impracticable and uninformed on the matter of road building are inclined to hark back to the ideas of the middle ages when the doges of Venice were wont to condemn short-term prisoners to pull the oars of their galleys, and the German emperors and Russian czars sent political prisoners to work in quarries, mines and road construction. Now it happens that in the middle ages, whilst the potentates were exercising this kind of authority, practically all kinds of labor was performed by hand; for instance, at Bourges and Ghent, at Axminster and Dresden, at Nuremberg and Cologne, tapestries, carpets and every kind of cloth was woven in hand frames with manually propelled shuttles, and forging and iron work was done at the furnace with hand-propelled bellows and with the anvil and tongs exclusively. No such thing is done today. At Manchester, Fall River and New Bedford and a thousand other places the spindles and shuttles that make the cloth are driven by machinery at incredible speed. The great gravity furnaces and roll mills are handling the iron and steel at a rate of tonnage that is marvelous to contemplate and there has been even a greater change in the method and in the practical operation of road construction.

The untutored and uninformed gentlemen who sit in the legislatures may spend their leisure hours in reading some romantic story of the building of the merchant roads from Nuremberg to Verona by political prisoners of the states of Bavaria and Lombard in Savoy. But that has no more application to Indiana, Ohio and Illinois today than the equipment of the classic fleet of Columbus when he made sail from Palos to a Cook's excursion steamer sailing for the Orient.

The proposition of road building today is not one of manual labor, but is distinctly a matter of equipment and well-organized effort. We have learned in the last fifty years to reduce every movement to the one measure of cost—"How much is the road to cost per mile, and what shall be its standard?" The principles of road building are well understood by road builders of experience. By going over the survey they can pick out the fills, the cuts, the culverts, the bridges, the ditches and the disposal of surface water; they can pick the crown that is needed, the amount of material that must be handled, and then they want to know the cost of crushed rock delivered at the nearest railroad siding.

The next item that must be considered, and is by far the most important in the matter of costs, is the price per ton per mile for hauling the road material from the car so delivered at the nearest siding to the place where it is to be deposited upon the road. In times past all of the road material was hauled to the road from the car or from the quarry gravel pit by temporarily securing the use of farm wagons and farm teams with farmer boy drivers. Depending upon such a method of transportation, there was literally no practical way of making even an approximate figure of the cost per ton per mile of handling the road material. No two farmer's wagon boxes were the same size; the amount of load which could be put into a farmer's wagon box depended largely upon the judgment of the farmer boy as to how much his team could conveniently haul over the road. There never was, nor is there yet, any method of finding out just what the cost of hauling a ton of crushed rock to the road would cost by such a method, no matter what the standard price for team and driver might be.

The shoveling item at cuts, fills and ditches, when done by hand, was one of those problems the cost of which could only be told after the completion of the work and all the hands paid off, and even this had little or nothing to do with the cost, for the maintenance of the workmen was a factor that changed every time the wind blew or whenever the hens of the neighborhood concluded that they would lay eggs.

This is somewhat of a picture of the way road building was conducted twenty-five years ago—but

don't let legislatures of today imagine that such is the method of road construction now. No small army of laborers file out to the job; no drove of country teams flock around the contractor's camp to haul big or little loads to the road, for the whole operation is carried on by machinery. The big traction engine outfits to haul the crushed rock from the cars, with known efficiency, having but one man to operate an engine with 150 h. p., draw 60 to 100 tons at a trip; power spreaders with one or two men spread the material on the road after the power-driven ditcher and graders have done all with five or six men that 500 shovellers were formerly employed at doing. Last comes the great roller to pack and crown the material so as to make the surface hard, and after this comes the hard paving brick or concrete surface on bitumen or what not to make the preservative.

A road gang consists of no more than a dozen experts who draw good wages, because their work in connection with the machines they operate do away with the expensive upkeep of hundreds of laborers who were employed in the old handwork days. A dozen well-trained and experienced men in a modern road gang are actually capable of building as much good road in one month as 500 untrained convicts could build in the same length of time with the best of superintendents, and they would also make a better road at the same time. The comparison of feeding, housing and clothing those 500 convicts would certainly cost double and possibly four times as much as the pay of the experts and the cost of the investment in equipment for modern road construction.

Consequently from the standpoint of cost alone it is idle to consider that convicts can be successfully used for the construction of roads in any of the states where the population is as dense as Illinois, Indiana or Ohio. The legislatures of Pennsylvania, New York and other Eastern states have already realized this and that is why their time is not consumed with the discussion of such idle arguments as the employment of convicts in road construction. It is purely a matter of the organization and equipment of experienced men to make larger and better results in the way of finished roads than could possibly be done by hand labor, and the enormous item of cost is the governing factor.

When it comes to the successful operation of penitentiary quarries, that too is quite as idle and quite as foolish, because the modern quarry is not operated by hand labor to any great extent. Only a few men are required in the quarry pit to load the cars, which are automatically drawn to the tipple by chains and by gravity to the crusher, where it is distributed to the storage bins automatically by means of a belted elevator and a revolving screen. The material is invariably drawn from the bins by gravity and in the whole operation men who are skilled and trained in the handling of heavy machinery perform all work, with the exception of a few men to do the sledging and the loading of the cars.

It is of record that at the Joliet penitentiary where a large operation is conducted, the warden finds it cheaper to employ free men to work in the quarry than to use convicts when the weather gets cold or wet and the men exposed to the hardest work are in need of extra clothing or extra medical attention. When it comes to the matter of output of the penitentiary quarry, it would indeed make an interesting sheet to set before the legislature a truthful statement of each and every car of so-called road material that goes out from the penitentiary quarries. Ever since the invention of the rock crusher in 1879 the railroads have used a large percentage of the output for their ballast requirements, and since the penitentiaries began to provide crushed rock for road material the railroad lobby immediately comes to the front with a proffer to haul the road material to destination at their regular rate of transportation charges, demurrage and attendant charges, taking their pay and toll out of the total amount of crushed rock hauled for road purposes.

Now a carload of crushed rock at 50 cents a ton amounting to 50 tons would come to \$25. The rate for 100 miles would be no less than 50 cents a ton, making another \$25, so that when the railroad has hauled the car of crushed rock 100 miles at 50 cents a ton the freight on the car makes that carload of crushed rock belong to the railroad, therefore not one pound of it can go for road purposes. If the railroad is going to haul the rock 50 miles, the rate would be about 40 cents, which would make \$20 worth of the rock or forty tons go to the railroad for hauling it 50 miles. On a 25-cent rate the railroad will haul out two cars, one to pay the freight on the other, so in that case one-half of the rock would reach the road, and that is about the best average possible to be obtained.

Now, a little study of the foregoing figures will convince almost anyone of just who gets the benefit of the penitentiary quarry, although it looks very generous in the halls of legislature for the representative of the railroad to get up and formally announce that the railroad is willing to haul the rock to any county or township road at their regular rate, taking their toll for charges in crushed rock from the quarry out of the total amount delivered at the road. If the county or township road requires 100 carloads of crushed rock the quarry must produce and load from 350 to 400 carloads, according to distance, in order to secure the delivery of 100 carloads to that particular piece of road, and that makes cheap ballast for the railroad, because they handle the cars with their regular trains and set them off where they are most needed, and the charges for such railroad operation is absorbed in the maintenance account, so that the rock so acquired amounts to a net profit and the railroad does not have to use any money in the transaction of getting a large percentage of ballast in this way.

There is no business so distinctly located as that of crushing rock for macadam purposes. The material itself is so cheap under modern methods of handling and producing that it will not stand transportation to any great extent, and road construction to be economically done must secure this cheap material from the nearest rock crushing establishment; for it is cheaper to buy rock at the quarry for 40 to 50 cents per ton and pay the local freight rate than it is to get the rock for nothing and haul it 40, 50 or 100 miles, paying the freight rate by whatever method may be ingeniously devised to avoid the payment of money.

The legislature that takes up as much as two or three days of its session in discussing the use of convict labor in road construction and in the operation of penitentiary rock crushing quarries is simply wasting the people's money with an impractical and entirely dead issue which can never be revised or made to return or in any way become an economical proposition. It is a display of the worst kind of medieval ignorance to attempt in this enlightened age to compare the product of well-designed and perfected machinery to the manual labor that is done by unqualified, disinterested and for the most part unwilling workers. There is no comparison in the quality of the work as completed and the difference in cost is so enormous in favor of machinery equipment and intelligent modern methods that this may be taken as the last word upon such a subject in the hope that every member of every legislature who has been so misguided as to waste his time upon such a topic may have a copy of this to digest at his leisure.

INTERNATIONAL ROAD CONGRESS.

The International Road Congress, which will be held this year in London, England, June 23 to 28, will bring together the leading men from practically every country identified with highway construction and maintenance. This is the third congress of the kind to be held, and is the first to be held in an English-speaking country. The first congress was held in Paris, France, and the second in Brussels, Belgium. These congresses are held every three years.

Papers will be presented from accepted authorities in each country. No less than twenty-five of these papers covering the various phases of road building construction, repair and maintenance, will be presented by American authors. Of this number, fifteen of the authors are members of the American Road Builders' Association, whose membership includes the leading road and street officials, engineers and contractors in the United States and Canada. This association and its members will play an important part in the Third International Road Congress in London.

The city of London and the British government have prepared elaborate entertainments for the delegates to the congress. Excursions have been arranged for the week previous to the congress, during the week of the congress, and the week following. Among the receptions will be one at the Guildhall at the invitation of the Lord Mayor and Corporation of the City of London on the evening of June 23, also one at Albert Hall by the Institution of Civil Engineers on the evening of June 25, and one by the Royal Automobile Club on the evening of June 26. At Windsor Castle the members of the Congress will be entertained by H. M. the King on June 26. The president, council and members of the Surveyors' Institution will give a garden party at the Royal Botanical Gardens on June 27.

Among the members of the American Road Builders' Association who have been appointed to go as delegates are the following: Samuel Hill, presi-

dent of the American Road Builders' Association, the official delegate of the association; O. E. Weller, chairman Maryland State Roads Commission, Baltimore, Md.; Henry G. Shirley, chief engineer Maryland State Roads Commission, Baltimore, Md.; C. A. Kenyon, president Indiana Good Roads Association, Indianapolis, Ind.; H. S. Carpenter, superintendent of highways, Regina, Sask.; W. A. McLean, provincial engineer of highways, Toronto, Ont.; Nelson P. Lewis, chief engineer board of estimate and apportionment, New York City; George W. Tillson, consulting engineer Borough of Brooklyn, N. Y.; W. W. Crosby, consulting engineer, Baltimore, Md.; Clifford Richardson, consulting engineer, New York City; Henry Welles Durham, chief engineer of highways, Borough of Manhattan, N. Y.; Edwin T. Thomas, assistant engineer, bureau of highways, Borough of Queens, N. Y.; Daniel B. Goodsell, assistant engineer, department of public works, N. Y.; Arthur H. Blanchard, professor of highway engineering, Columbia University, N. Y.; William D. Sohler, chairman Massachusetts highway commission, Boston, Mass.; A. N. Johnson, state highway engineer, Springfield, Ill.; Joseph Hyde Pratt, state geologist, Chapel Hill, N. C.; George W. Cooley, state highway engineer, St. Paul, Minn.; E. L. Powers, editor Good Roads, New York, and A. B. Fletcher, state highway engineer of California, Sacramento.

AMERICAN ROAD CONGRESS.

The American Road Congress will hold its third annual meeting at Detroit, Mich., during the week of September 29. This decision was reached by the joint committee of which Logan Waller Page, Director of the United States Office of Public Roads, is chairman, after a spirited contest which finally narrowed down to the cities of St. Louis, Denver, Minneapolis and Detroit. The congress is a great annual assemblage of the good roads organizations throughout the United States and is held under the auspices of the American Highway Association, the American Automobile Association and the National Association of Road Machinery and Material Manufacturers, the latter organization being concerned primarily with the exposition of machinery and materials held in conjunction with the congress.

As there are between thirty and forty state and interstate organizations identified with the American Highway Association in addition to its 1,800 regular members, the big meeting will be thoroughly representative in character.

Arrangements have just been made to hold the annual meeting of the Michigan State Good Roads Association, which has 15,000 members, the newly organized Michigan Trunk Line Association and the Ontario Good Roads Association in conjunction with the congress. The combined attendance of these various road organizations will be well over 5,000 and will certainly set a new record far in advance of attendance figures at any previous good roads meeting in the United States.

The foremost engineers and contractors will join with distinguished laymen in making the program complete and effective. The sessions will be arranged as heretofore so as to specialize on construction, maintenance, legislation, administration, economics, etc. It has been decided to have a special session for the benefit of contractors, and in order to make this session of practical value to the contractor. A committee composed of some of the best informed men on contract work in this country will have full charge of preparing the program and conducting the session.

The exposition will be held on the ground floor of the Wayne Gardens immediately under the large hall in which the sessions of the congress will be held and, in order to meet the requirements of the companies which manufacture heavy road building machinery, a large vacant lot and an adjoining street will be transformed into exhibit space by the erection of a large tent in which heavy machinery may be exhibited and demonstrated. As heretofore the remarkable government exhibit of road models will be a feature of the exposition, together with the various state exhibits which will be shown in much larger number than at the congress held in Atlantic City in 1912.

The officers of the congress are: Logan Waller Page, director of the United States office of public roads, president; Lee McClung, former treasurer of the United States, treasurer; J. E. Pennybacker, secretary of the American Highway Association, secretary, and Charles P. Light, former state highway commissioner of West Virginia, assistant to the president. The headquarters of the congress are in the Colorado building, Washington, D. C.

New machinery and equipment has been installed at the plant of the Chico Crushed Stone Company, near Chico, Tex. It is now producing 40 to 50 cars of crushed stone daily.

ILLINOIS' GOOD ROADS LAW.

The Tice bill has been passed by the Illinois legislature and will provide for a non-partisan state highway commission of three members to be appointed by the governor and erects a system of state aid for the building of hard roads of suitable specifications by the counties. The funds derived from the automobile licenses in the state treasury have accumulated to the amount of \$800,000 and additional appropriations will be provided by the legislature from time to time.

As suggested and outlined in these columns frequently in the past, the new Illinois road law provides for a central state highway commission and with a county superintendent in each county subsidiary to the highway commission, and this superintendent will in most cases be the county surveyor. A referendum has been provided in the law by which the townships and other road districts may decide for themselves by vote whether they shall continue the present antiquated system of three elective highway commissioners to conduct the road work on the isolated township plan which has proved to be both unsuccessful and unsatisfactory in the past.

The Tice bill has had very wide discussion with the best and most interested organizations and cities of the state and the referendum clause was inserted to make those who opposed the bill remove their objections. There may be a few contrary townships that will insist upon continuing the ancient and obsolete method of electing the township road commissioners who even need the money more than the township needs the roads, but very few such townships will make use of the referendum and they will not use it more than one or two terms, or long enough to observe the wonderful difference of modern, enlightened progress as compared with the inefficient and unsatisfactory methods which have never given the people roads but added to the list of local politicians with the public tit in their mouths.

The bill as passed provided \$300,000 for the next two years for state aid of roads from the general fund, and \$400,000, or one-half of the road fund already accumulated from the automobile licenses for 1913. Similar amounts were carried in the appropriation for the year 1914. The automobile has made necessary the repair and added to the cost of upkeep of roads to some extent, but the greater influence of the automobile has been the development of knowledge of the deplorable condition of the state's roads. This knowledge has become general so that all of the people of the state are acquainted with the fact that Illinois never did have any roads and could never have any roads under the old system. The adoption of the Tice bill is a distinct step in the right direction. As yet it is incomplete and imperfect, but as fast as it is applied, better understood and more perfect needs developed thereby future laws will take care of the perfecting of the state aid system of building good roads.

In this particular Illinois is merely a type of the same kind of movement which is going on in a number of other states, notably in Indiana, Missouri and Iowa, all of which will see enacted in the near future road laws somewhat similar to the Tice bill; for the automobile has taught the people at large some glimmering of the need and value of a complete system of good roads. Of all the middle-Western states Ohio has been in the lead for about ten years. That state has worked more intelligently and persistently to develop first, a definite idea of the need in the way of a road system, and secondly, to find the best way of producing such roads as are needed with the available funds at hand.

It is significant that the older states of the Atlantic Seaboard have a much better understanding of the road proposition and such problems as present themselves in the middle-Western states have never been in evidence there, for the reason that road building began in those states on a somewhat definite plan long before the railroads absorbed public attention as well as all the available money that could be put into the highway idea. With the completion of the railroad systems the public highway again comes into importance and we find that the success of the railroad investment depends very largely upon the roads which bring the tonnage from the interior to the railroad tracks.

We are moving in the road importance feature of the county steadily onward, and the firm conviction of the public that the money spent by the highway commission must be expressed in finished road of high quality will mean that within the next generation a good system of roads will be built throughout the length and breadth of the middle-Western states with several roads possibly of transcontinental importance.

SUBSTANTIAL IMPROVEMENTS.

New Paris, Ohio, June 1.—C. L. Reinheimer, of the Reinheimer Stone Company, in a letter to Rock PRODUCTS says:

"We are now up to the final inspection of setting, 'as per requirements of Ohio state law,' of a 300 H. P. water tube boiler, Heine make, to take the place of our two 100 H. P. boilers, horizontal type.

"The Loomis Machinery Company, of Tiffin, Ohio, have one of their Clipper drills in our quarry for a tryout as to the efficiency of this type of drill for our rock; if it proves satisfactory our order is placed.

"Our company have some nice big fat orders for the season; we always feel glad with a good season's business ahead, no matter who is president or what the Japs think of California; we are out of the fight and get busy.

"They all know that the Reinheimer stone is best for macadam, concrete or ballast purposes; we don't have to tell them."

In referring to the recent floods, Mr. Reinheimer says:

"We are glad to report but little damage to our property; a slight overflow of small stream to our north filled our quarry with water a-plenty, but as our quarry is on high ground the machinery is all above water and safe.

"Our people are installing a large pump, which will give us quick relief from the surplus water.

"The highways in this community have not been damaged to compare with other territory which we read about, but the elements sure got in their work on some which will take considerable time and quite an expenditure of money to make the highways passably good.

"It is with much pleasure that we can report the macadam roads have stood the test in fine shape, both water bound and the ones where binders of various kinds have been used; also the traffic bound roads have made a good showing, and we hear many remarks of the superiority of the crushed limestone for road material over other material.

"I have visited several places where the Reinheimer Stone Company have furnished material and find that the severe wash of the flood both paralleling the road and a cross wash have hardly displaced a piece of stone; the binder or dust has been washed off, but the stone are intact and a little binder and rolling with a good roller will make the road as good as new.

"One of the pieces of road which I call special attention to is a three-mile stretch out of Eaton, Ohio, known as the Sugar Valley road, built by or under the supervision of the state highway department; has been in service about two years, and the part washed lies parallel to the river and the water flowed in part across the roadway; the three miles of road is a boulevard to drive on and the damage done by the excessive wash for about one-quarter of a mile can be repaired with ten yards of binder and three hours of rolling. The evidence of overflow of water is that it was about three to four feet deep on this roadway.

"The gravel roads are the ones which have proved that the elements play havoc and are insufficient and that the money spent for this material is practically thrown away.

"It is evident from the havoc played on our culverts and highway bridges that too little care has been exercised as to the clearance and preservation of the channel; it is our opinion that there should be some higher authority to pass on this part of the work.

"The county depends on their county engineer, who perhaps has no scientific knowledge of the work and forgets to give heed to requirements, many times not elected for his qualifications but the party good fellow.

"The railroads have their civil engineers. Pray tell me who has any authority over them. Many times close the channel of stream with great iron girders below grade where they should be above grade, of whom do they ask authority or permission; other times making fills and changing the water course entirely, to the detriment of the other fellow.

"We sure have been careless in the past, but such calamity as has been visited on the Ohio Valley wake us up and we can see the folly of carelessness and cheap construction by the toll of life and property, besides the many sad homes."

The Wheeling (W. Va.) Limestone Company's plant on the Reymann hill, which has been under construction for the past several weeks, has been completed and large quantities of stone are being quarried daily. The company has erected a chute from the plant to the railroad where the stone is being loaded for shipping. The stone at this new plant is said to be of the best quality obtainable, and as a result it is meeting with much demand for concrete and macadamizing purposes.

HIGHWAY ASSOCIATION ADOPTS NEW TITLE.

For the sake of convenience the title of the American Association for Highway Improvement, which is launching its third successful year, was changed at the annual meeting to the American Highway Association as it will be henceforth known. Logan Waller Page, director of the United States Office of Public Roads, was re-elected president of the association, while W. W. Finley, president of the Southern Railway Company, was elected vice-president in place of W. C. Brown, president of the New York Central Lines. J. E. Pennybacker, Jr., was re-elected secretary, while Charles P. Light was re-elected organizer and field secretary. Lee McClung, treasurer of the United States, continues as treasurer of the American Highway Association.

Newly elected directors of the association are James H. MacDonald, state highway commissioner of Connecticut; George W. Cooley, state highway engineer of Minnesota; A. G. Batchelder, chairman executive committee of the American Automobile Association; C. A. Kenyon, president of the Indiana Good Roads Association, and Dr. Joseph Hyde Pratt, state geologist of North Carolina.

DOING A FULL BUSINESS.

Findlay, Ohio, June 4.—J. A. McCall, of Tarbox & McCall, in speaking of the recent floods, says:

"Findlay is one of Ohio's flood towns, although not suffering nearly so bad as many other towns; yet we suffered a good deal and lots of damage was done. It is an old saying that 'It is an ill wind that blows nobody any good.' The flood made need for lots of concrete work and we are having our share of that part, furnishing material. We have long felt the need of a screening crusher, but have never been able to find one of our liking until the past winter. We visited the factory of the Universal Crusher Company, Cedar Rapids, Iowa, and found a crusher of their make that will make screenings as you like. This spring we installed a No. 4 of their crusher and find it to be just what we were looking for. We have had a good business this spring for the time of year, in our stone works and our concrete work."

The Lewisburg Stone Company, Lima, Ohio, has increased its capital from \$100,000 to \$125,000.

Walter Mitchell of La Plata, Md., is reported interested in installation of plant for crushing oyster shells and lime-producing deposits for lime.

Spencer Mountain Brick & Stone Company, of Charlotte, N. C., will build a stone-crushing plant; daily capacity, 4,000 tons; reported cost, \$12,000.

The Doherty Lime and Stone Company, Toledo, O., has been incorporated; \$10,000; incorporators, John C. D'Alton, Nolan Boggs and Tim M. Sullivan.

Fowler & Pay, Mankato, Minn., has secured from a Chicago firm a large contract for crushed stone, and this will keep the plant in operation during the entire summer. The contract calls for 500 carloads of stone.

Carolina Stone Company, Williamston, S. C., capital stock \$25,000, incorporated by J. T. Nealson, Maurice Klein and I. L. Lanier, all of Greenville, S. C.; will build crushing plant with daily capacity of 1,000 tons stone.

All the rock which entered into the construction of the wonderful dam across the Mississippi river at Keokuk, Ia., was taken from the old Patterson stone quarries below Montrose, but on the Illinois shore, some three or four miles above Keokuk.

Fire totally destroyed the lower crusher of the Upper Hudson Stone Company, midway between Cedarell Station and Marlborough, N. Y., a few days ago. The loss, it is estimated, is at least \$200,000, partly covered by insurance.

Important business expansion is suggested in the fact that the France Stone Company of Toledo, Ohio, has increased its capital from \$40,000 to \$500,000. President France, however, says he is not quite ready to make known the company's plans at present. Offices of the company are in the Ohio building.

A company has been organized for the purpose of erecting three large granite crushers near Llano, Texas. The company proposes to furnish gravel for the state. About 500 men will be employed at first and the number increased as business demands. R. H. Downman, of New Orleans, and J. S. Rice, of Houston, are the largest stockholders. Prof. N. J. Badu has charge of the work.

ROAD EXPERT VIEWS OHIO FLOOD.

Lima, Ohio, June 1.—Allen Patterson, of the Bluffton Stone Company and former president of the Ohio Quarrymen's Organization, says: "To give any adequate description of the extent of the damage done is not within the bounds of words at my command.

"I have taken a trip over the flooded district, extending from Fremont to Cincinnati, and the sights that met my eyes were so dumbfounding that it is impossible to give an idea of the damage to property along the route.

"I presume the city that was hit the hardest was Dayton, Ohio, which is nothing more or less than a wrecked city, with all of the rubbish that one could possibly imagine scattered or piled along its streets. They were operating steam shovels on their public streets; railway cars are run in on the traction lines and loaded by steam shovels to get rid of the dirt and debris that accumulated during the flood.

"Possibly the greatest mystery of it all is the fact that only about 400 lives were lost. One can hardly imagine that such a flood could exist without the loss of anywhere from 15,000 to 20,000 people; but as the old saying is that 'A man will fight to the last inch for his life,' possibly solves this question.

"The railways, especially the C., H. & D., Big Four and the Erie, are suffering greatly from the effects of this flood; in fact, miles of their track is carried away and some cars have been known to have drifted as high as fourteen miles away from their own tracks.

"I saw in the track of this flood buggies in the tops of trees, houses that had been floating down stream lodged in the middle of farms, carloads of baled hay and binder twine strewn along the tracks; dead horses, cattle and sheep; in fact, everything possible to imagine.

"Getting back to our public highways, the damage is great in many places, especially along the streams where there were any fills of size; these places have been washed away; new grades and new stone will have to be used to replace them. Other roads where the binder was washed away, leaving the naked rock, are damaged to some extent, but can possibly be repaired with a top dressing.

"The current was so strong that even asphalt streets or brick streets could not withstand it. Sheets of asphalt were rolled up like that much linoleum and carried away, taking with it foundations and all.

"Our counties and townships are very unfortunate at this time, not being able to meet the demands for material on account of lack of funds; hence, the repair of a great many of these roads will have to be laid over until a sufficient amount of funds can be raised so that they can undertake the task.

"Another one of the damages to this country is the loss of bridges. So many of the large steel structures have been wiped away, leaving nothing but the open current. These bridges lie along the rivers, a mass of tangled and bent steel.

"To me it looks as though it would take many years to bring this section of the country back to where it was before this flood, which was the worst, I think, that I have ever read of."

Edward Hely, manufacturer of crushed stone, Cape Girardeau, Mo., in a recent communication, said: "I appreciate the fact that Rock PRODUCTS has always been a good booster for the stone interests, and would be very glad to do anything that I could to help you along. I have just bought two Sullivan drills, one a 3% drill which is a new pattern that they are just bringing out, and it looks very good to me. The other one was their regular 4 1/4 drill. I am not needing anything more at present. I am very busy here crushing stone for the Cape Girardeau Portland Cement Company, furnishing stone for a number of new concrete streets at this place, and ballast for the St. L. & S. W. railway. The demand has been very good, and I look for the best year I have had in years."

J. L. Mitchell, manager of the mining machinery and crushing department of Wettlaufer Brothers, Toronto, Ont., made a very pleasant call upon us the early part of this month. Mr. Mitchell was formerly connected with the Universal Crusher Company of Cedar Rapids, Iowa, and moved to Toronto in the fall of 1912. He reports business in very good condition in Canada and says that weather conditions are now opening up so as to permit easy operation of quarries. The Wettlaufer Brothers have opened up an office in Buffalo and expect shortly to establish one in New York City. They manufacture the Mitchell-Eureka crusher, which is one of the best machines on the market.

L. B. Hodgkin, president of the Kokomo Stone Company, Kokomo, Ind., reports that up until the present time prospects have not been unusually encouraging, but that better conditions are looked for soon. The backward season, he attributes, is due to the recent floods in that section of the country. The Kokomo company has spent \$7,000 in overhauling its plant and installing new machinery. They recently let a contract for stripping 50,000 yards of dirt off their quarry.

John D. Owens & Son Co., Owens, Ohio, have made a few improvements in their plant lately. Marion-Osgood traction shovels for loading stone have been purchased which will materially add to the company's present facilities, as the shovels can be operated any place about the quarry without railroad tracks or side-jacks. John D. Owens, of this concern, reports that the plan is working out satisfactorily.

Fred V. Yohe, president of the Peru Stone and Cement Company, East Peru, Iowa, recently stated to us that "business this spring was a little slow in starting, but when it started it went with a rush. Our principal output is 1-inch stone for reinforced work, shipped mostly to Des Moines where a great deal of this kind of work is under way. We do not expect much from the 'good roads' law which was enacted by our last legislature, except possibly a few small orders from a few counties for concrete culverts, etc. On the whole, business looks very good for the season."

Reliance Quarry and Construction Company, Alton, Ill., has made considerable improvements and enlargements of its plant this spring, consisting mainly in an additional stone crusher (Gates No. 3) for the production of more 1-inch stone, new incline to crusher, new elevator, new steam pump and minor changes. They find business rather slow just now and prices low, but hope for better conditions soon. Meanwhile they are looking and acting cheerful and trying their best to boost things. "We have seen it rain before," said E. A. Herman, president of the company, "and the sun shone brightly afterwards, and we are confident it will do so again."

F. R. Kanengeiser, general superintendent of the Bessemer Limestone Company, Bessemer, Pa., in a letter of recent date stated: "We have installed at our plant at Bessemer one of the New Fairmount type crushers made by the Allis-Chalmers Mfg. Company, together with a complete outfit of screens, elevators, conveyers, etc. We have also remodeled our No. 8 plant, equipping it with 2-4 section screens, bringing the plant into line as an A-1 ballast plant. We send part of the oversize from Fairmount roll to the No. 8 crusher and part to our No. 7 plant. The balance of the stone from the Fairmount roll goes for fluxing stone, thus you can see that we are modernly equipped with a very flexible plant, allowing us to produce not only a large tonnage of flux, but all sizes of stone as well. In addition to this we have added two Model '100' Marion shovels to our equipment, which we are using to dig stone. This is a new departure for this field, for all the quarries have been operated by hand. The shovels are handling stone very satisfactorily."

Buckner-Ragsdale Stone Company, Sikeston, Mo.; capital, \$10,000. Incorporators, C. M. Buckner, W. B. Ragsdale and A. B. Gibbs.

The Missouri Valley Construction Company has purchased the Hop Hollow quarries above Alton, Ill., and is making extensive improvements.

Southern Stone Manufacturing Company, Nashville, Tenn.; capital stock \$10,000; incorporated by W. O. Seat, R. H. Waller, J. Y. Cabiness, A. A. Streit and C. T. Matthews.

The Newton County Stone Company, Kentland, Ind., has been incorporated; capital, \$15,000; to crush stone for commercial purposes; directors, W. T. McCray, F. W. Van Natta, W. W. Evans, William Darroch.

A very destructive fire occurred recently at the plant of the Lenni stone quarries, Chester, Pa. The loss entailed is estimated at \$75,000. The big frame tower, which contained costly crushing material, and the elevators used to load the cars with crushed stone were practically destroyed.

The Green Stone & Quarry Company, Green Bay, Wis., closed a deal last week which will keep the company's big stone quarry busy for the present season. The contract calls for 40,000 tons of stone, 15,000 for the government and 25,000 for P. W. Galloway of Racine, who will use the stone in private contract work.

The officials of the Natomas Company have announced that their big rock-crushing plant in Oroville, Butte county, California, will start operations just as soon as the Pacific Gas and Electric Company can furnish enough power to keep the plant going. The rock crusher has been shut down since last fall, as the company had a big lot of reserve crushed rock. The officials also stated that there would be employed not less than fifty men in the operations.

The output of the Cumbler stone quarries, below Steelton, Pa., has been greatly increased by putting into operation a new steam shovel recently purchased, and by getting new cars to replace the old carts that were formerly used to convey the blasted rock from the quarries to the crushers. The new steam shovel will do the work of several score of men and will solve the labor problem for the Cumbler people. The Cumbler quarries furnish several carloads of crushed stone for the Pennsylvania Steel Company every day.

The Alvord Quarry and Construction Company at Alvord, Texas, which will furnish a large amount of crushed rock for Tarrant county roads, now being constructed by the Texas Building Company, will begin operations in about ten days. The plant and quarry were formerly owned by John May and have not been in operation in three years. The machinery is being overhauled and repaired and the Denver road has a force of men repairing its spur to the quarry. The plant will have a capacity of 1,500 yards of crushed rock per day. The company was recently incorporated with a capital stock of \$100,000 by C. R. Bardin, J. T. Hughes and W. L. Gee.

EXHIBITION OF ROTARY AUGER DRILLS.

One of the most interesting and instructive exhibits at the recent Wilkes-Barre Industrial Exposition was that of the Howells Mining Drill Company, of Plymouth, Pa. This enterprising firm, having secured one of the largest pieces of anthracite coal ever taken from a shaft, a piece weighing over 10,000 pounds, gave a remarkable demonstration of the speed and efficiency of their famous Spry type "S" and "D" electric drills. These drills are being used in every part of the United States as well as in a great many foreign countries and are capable of drilling coal, slate, fire clay, rock salt, gypsum or any rock that can be drilled with a steel auger. This machine is the invention of Franklin B. Spry, the president and general manager of the Howells Mining Drill Company, and is the outcome of seven years of untiring effort. They are pronounced by mining men to be among the fastest, strongest and most durable electric mine drills ever placed on the market and fill a long-felt want. Over 50,000 people witnessed the performance of these drills boring holes 1½ inches to 2½ inches in diameter through the coal and slate at the rate of from seven to eight feet per minute.

Another machine of the Howells manufacture which attracted considerable attention was a subsoiling drill. This is an entirely new idea and is used for drilling holes for subsoiling purposes. The machine drills holes in the ground from three to six feet deep and about ten feet apart, into which the dynamite is placed and exploded, with the result that the ground is broken up but not disturbed to a very great extent upon the surface. This loosening of the shale and earth allows the crevices to fill with dirt and also allows the soil to hold moisture to a great extent, thus starting vegetation on seemingly unplanted ground. The drilling of these holes is found very valuable in planting trees, as it allows the roots to get a firm anchorage. This machine is mounted on 48-inch wheels and can be easily transported; it is operated by a 3 h.p. 250-volt motor and will drill holes from 1 inch to 2½ inches in diameter to a depth of eight feet. This machine will prove a very valuable implement for subsoiling purposes.

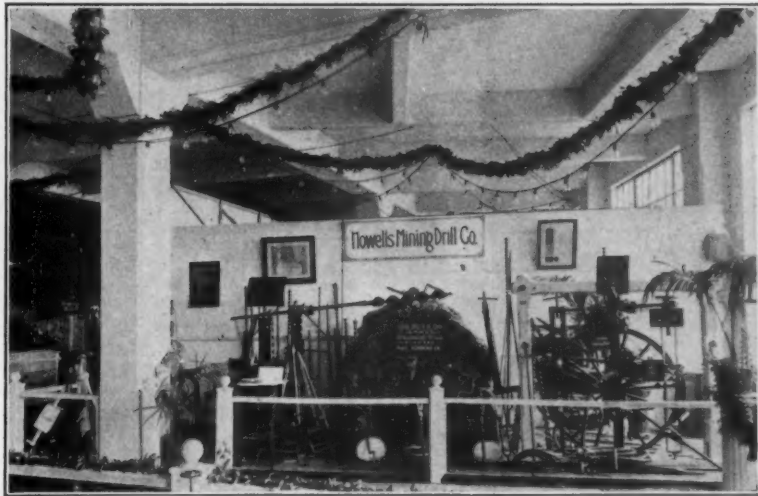
The Howells people also had on exhibition one of their No. 2 compressed air drills, which is claimed to be one of the best of its kind manufactured. It consists of a reciprocating high-speed motor which makes 2,800 r.p.m. and consumes about 36 feet of free air per minute under a pressure of 50 to 70 pounds. The machine can be mounted either on an upright post or a tripod and is a most excellent drill for coal, slate, fire clay, rock salt, gypsum, etc.

The great variety of hand drills on exhibition also attracted the keen interest of the thousands who visited the Howells booth. Most notable among these were the prospectors' hand drill and the Howells heavy geared post drill; the former is designed to meet the demands of the prospectors and miners in general who want to drill holes of uncertain depth. It is mounted on a tripod and will drill holes at any angle to a depth limited only by the length of the augers supplied; the latter machine is considered by many mining experts to be among the fastest, strongest and most durable coal and rock drills ever placed on the market. It works at any angle and in any position, and will drill material that an ordinary machine could not withstand. The post has a pivot fastening and can be very easily adjusted.

These, together with forty other styles of rotary auger drills suitable for every condition of mining, made up a very attractive and most interesting exhibit.

The Indiana State Stone Club has recently issued to its members a very neatly gotten up little booklet containing the constitution and bylaws of that organization, list of active and associate members and other information. The quarries represented by the Indiana State Stone Club produced and marketed in 1912, 2,068,500 tons of crushed stone, while in 1911 Indiana ranked third in the production of limestone. The officers of the association are: O. H. Binns, president; W. H. Foreman, vice president, and R. N. Van Winkle, secretary-treasurer.

A. D. and Louis A. Merrill, Boonville, N. Y., have formed a company, and have already placed orders for the machinery for a large stone crushing plant at the Merrill farm, near Sugar River. This limestone has been assayed and found to contain a large amount of proper substances for the manufacture of ground lime for farm purposes, and machinery for grinding will soon be placed in position. Quite a force of men will be employed, and with the shipping facilities of both railroad and canal, the company should do a thriving business from the start.



HOWELLS MINING DRILL COMPANY'S EXHIBIT AT WILKES-BARRE INDUSTRIAL EXPOSITION.

SAND AND GRAVEL

NATIONAL ASSOCIATION OF SAND AND GRAVEL PRODUCERS.

Meets Annually.

OFFICERS.

F. W. Renwick, Chicago Gravel Co., 343 S. Dearborn St., Chicago, Ill. President
H. H. Halliday, Halliday Sand Co., Cairo, Ill. First Vice-President
W. F. Bradley, Ohio & Michigan Sand & Gravel Co., Toledo, Ohio. Second Vice-President
H. F. Curtis, Lyman Sand Co., Omaha, Neb. Third Vice-President
Lee R. Witty, Wabash Sand & Gravel Co., Terre Haute, Ind. Fourth Vice-President
J. J. Neary, Utica Fire Sand Co., Utica, Ill. Fifth Vice-President
C. H. Brand, Atwood-Davis Sand Co., Chicago, Ill. Treasurer
Chas. D. Warner, Chicago, Ill. Secretary

A LARGE CRUSHING AND SCREENING PLANT. The Ohio Ballast Co.'s Webster Equipment, Involving Many Novel Features.

Ballast material for the Norfolk & Western railway has been dug for years from a large deposit at "Gravel Pit," about 16 miles east of Cincinnati, along the company's right-of-way. The sand, fine gravel and large stones are not suitable for ballast, but when properly washed, crushed and sized are of value for concrete mixtures, mortar, roofing, etc. So the railway company has contracted with the Ohio Ballast Company to work the pit on a commercial basis, to supply well-prepared ballast for roadbed uses and to dispose of the other materials in the usual markets.

The plant erected to do the work of preparing the materials is very interesting in its construction, equipment and methods. The building is of reinforced concrete to the bin tops, with superstructure of wood framing and corrugated metal sheathing.

The Equipment and the Operation.

The equipment of conveying, screening and power transmission machinery was furnished by the Webster Manufacturing Company, and is of high grade in every way, with numerous novel features.

Materials are dug from the bank of the pit back of the plant by a steam shovel, deposited in a ballast car, hauled by steam locomotive to the top of the track hopper, Figs. 1 and 2 and are dumped therein. A reciprocating feeder beneath the hopper delivers the material evenly to a 30-inch conveyor belt, carried on Webster adjustable troughing idlers. Inclined about 18 degrees, the belt conveyor takes the materials to the top of the washing plant, at a height of about 60 feet above the ground.

Reference to Fig. 3 will show how the materials are handled from the conveyor belt to storage bins.

This is only an outline sketch to illustrate the flow of the materials, and makes no pretense of showing the relative sizes or locations of the various items of equipment.

The belt conveyor discharges into a large steel stone-box, into which also the wash water is injected through a flat nozzle. The bottom of the stone box has "grizzly" bars which reject all large stones to the large gyratory crusher, while the smaller stones, with the sand, are sluiced into either or both of two wash screens.

Washing and Screening the Gravel and Sand.

The washing screens have three jackets each, making a four-size separation. The perforations are 2-inch, 1½-inch and ¾-inch. Rejects from the 2-inch jacket go to the large crusher and the 1½-inch rejects to the secondary (disc) crushers. The ¾-inch material goes direct to the ballast bin and the stuff under ¾-inch is sluiced with the water to the two sand screens.

The sand screens have two jackets, with openings ¾-inch and ½-inch in size. The ¾-inch rejects and the ½-inch material go to separate gravel bins, as indicated in Fig. 3, while the sand and water flow to the sand box.

The sand box is a double affair, Figs. 4 and 5, so arranged that the coarse sand settles in the first compartment and the fine is carried on to the second compartment. The water passes over spillways and is carried off by launders. The two sizes of sand are dropped through valves in the box bottom and fall directly into their respective bins.

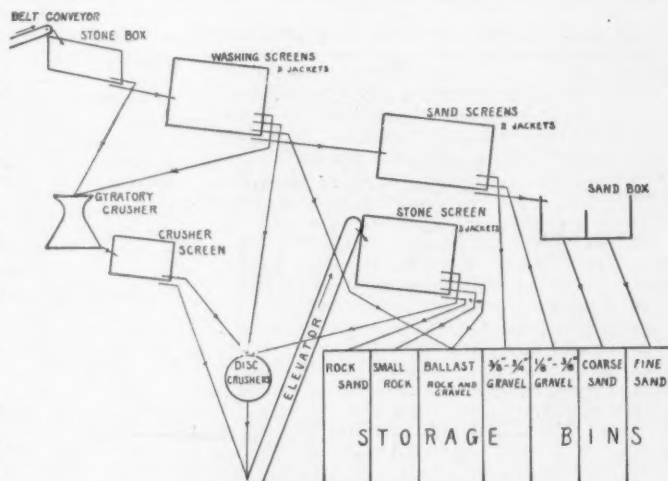
Thus the sand and gravel up to and including ballast size are disposed of. Now to follow the oversize rejects from stone box and washing screens.

Crushing and Screening the Oversize Stones.

The stone box and washing screens reject everything over 2 inches in size to the large crusher, whose discharge is passed, Fig. 3, to a 1½-inch screen, whose rejects join those of the second jacket in the washing screens at the disc crushers for further reduction. The broken rock passing the crusher screen joins the discharge from the disc crushers at the foot of a continuous bucket elevator by which the material is raised to the three-jacket stone screen for final separation into rock sand, small rock and ballast sizes. The rejects go back to the disc crushers for proper reduction.

Ballast thus consists of both gravel and crushed rock, while smaller sizes of both are kept separate.

Photographs in plants of this kind cannot show up the arrangement and equipment in adequate style, but the company's several fragmentary views give an idea of the character of the machinery and of the work it is doing. The run-of-bank material is cleaned, crushed and separated sharply into seven grades of material, and deposited in bins from which they can be loaded directly into railroad cars for



(FIG. 3) "FLOW" DIAGRAM, SHOWING COURSE OF MATERIALS THROUGH PLANT.

shipment. Except in the elevating of crushed rock to the stone screen, the entire flow of the materials is by gravity from the head of the belt conveyor to the bins and the cars.

Mr. Johnston, general manager of the Sabula Sand & Gravel Company, of Sabula, Iowa, is enlarging his plant. He has purchased a new set of the gravel washing screens furnished by the Raymond W. Dull Company, Chicago.

The Silverwood Sand & Gravel Company, Silverwood, Ind., has placed orders with the Raymond W. Dull Company, of Chicago, for a complete plant equipment. It consists of a 1½-yard drag line excavator, a 45-horse-power triple drum excavator engine, a set of new-type inclined gravel washing screens, sand separators, loading spouts, engines and boilers, and other plant equipment.

The use of an automobile in sales work by the Ohio River Sand Company, Louisville, Ky., has been an important factor in holding up demand. Under former conditions, it was practically impossible for the sales force of the company to cover Louisville effectively. With an auto in use, however, contractors can be seen regularly and without exception, and the company's business has shown the effects of the change.

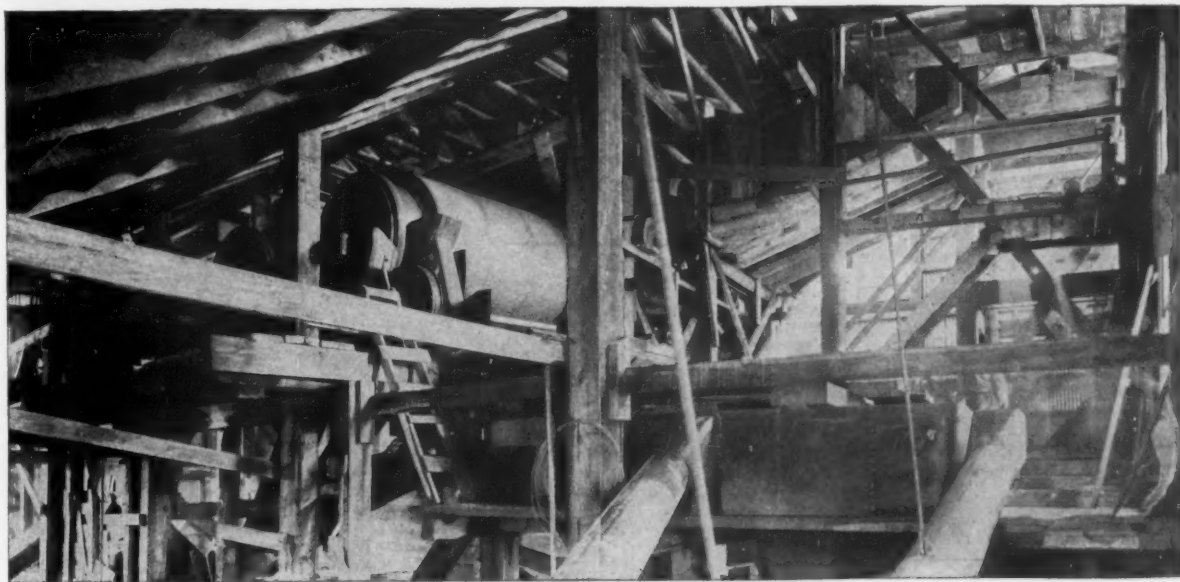
A valuable handbook has been published by the Wisconsin Retail Lumber Dealers' Association and is being distributed by Adolph Pfund, secretary of the association, with headquarters at Milwaukee. The booklet contains, in addition to a complete list of the members of that association, lists of other retail dealers' associations, directory of manufacturers' and wholesalers' associations, list of trade journals, and a list of membership of the Northwestern Lumber and Sash and Door Traveling Salesmen's Association.



(FIG. 1) WEBSTER BELT CONVEYOR FROM TRACK HOPPER TO PLANT.



(FIG. 2) WHERE THE BELT IS LOADED BY A RECIPROCATING FEEDER.



(FIG. 4) GENERAL VIEW ABOVE THE BINS—STONE BOX RECEIVING MATERIALS FROM BELT AT RIGHT, TOP; WASHING SCREENS IN CENTER BEHIND; STONE SCREEN AT EXTREME LEFT, SAND SCREENS PLAINLY SEEN AT LEFT CENTER; SAND BOX AT RIGHT, FRONT.

Fisher & Clark Sand and Gravel Co., of Janesville, Wis., has purchased over fifty acres of land in the Wheeler addition to South Beloit, from W. H. Wheeler, for the purpose of converting it into a big sand pit. It is understood there is to be a switch track at each side of the new pit so that the sand can be rapidly handled. "We expect to turn out forty carloads of sand and gravel a day when we get our pits in operation," said Grant U. Fisher, head of the Fisher Sand and Gravel Co., which has purchased fifty-five acres in South Beloit of W. H. Wheeler. Mr. Fisher stated that his company was now waiting a license from Illinois to begin the actual work of shipping its product. The building work has actually begun and the latest and most improved machinery is to be installed in the plant. The Fisher company has offices in Janesville and Chicago and will open one here as soon as the local plant is ready to start.

The Natural Sand Company of Zanesville, Ohio, capital \$6,000, has been formed by David Jones, H. M. Widney and others, and has its offices in the Masonic Temple building in that city.

The Greenville Gravel Company, Ft. Jefferson, Ohio, has increased its capital from \$108,000 to \$200,000.

Ira McSherry, who moved from Reno county to Meade, Kan., buying land south of that point, has discovered a large deposit of silica on his place.

Bend Gravel Company, Covington, Ky., has been incorporated; capital \$50,000; sand and gravel business; directors, C. L. Robb, H. G. Ost, A. M. Cook.

McLelland Gravel Company, of Houston, Texas, has been incorporated; capital stock \$40,000. Incorporators: W. C. McLelland, H. W. Bishop, John E. Bishop, Jr.

Ottawa Stone and Sand Company, Ottawa, Ill., has been incorporated; capital \$30,000; dealing in stone and sand; incorporators, H. L. Hossack, H. C. Wiley, Clarence Griggs.

Application for a charter recently was made by Nashville business men proposing to organize the Tennessee Gravel Co., having \$5,000 capital. The incorporators are: E. J. Pranke, C. D. Cohen, C. E. Johnson, H. A. Black, G. S. Andrews.

M. D. Sullivan and Timmons Harmount, Chillicothe, Ohio, have purchased seven acres of gravel land on which they have a gravel washer. The terms of the deal are private. It is estimated that the supply will furnish 25 years' continuous operation.

Cuero, Tex., June 16.—The Averill Gravel Company, which recently bought holdings in the gravel beds here, is putting in extensive improvements, to include machinery for digging, washing and loading. The company claims to have one of the best gravel beds in the state.

The Greesil Gravel Company, which recently bought 30 acres of the Muti tract in Northeast Cuero, has moved to Houston, Texas, from Beaumont, and is making big improvements on this tract. A switch is being laid to the land by the Southern Pacific. All gravel will be dug, washed, screened and loaded by machinery.

Four miles of gravel deposits along the Trinity River, from Carrville to Trinity Center, Calif., have been taken under bond and option by the Guggenheim syndicate. The holdings include the rich Alta Bert dredging deposit, and claims held by the Trinity Reduction and Mining Company, Mrs. George Carr and other interests. The option runs for six months, and the ground will be thoroughly tested to determine its fitness for dredging. A force of sixty men will be put to work at once prospecting the acreage. It is probable much of the work will be done by means of prospect shafts, with a likelihood that later on diamond drills will be installed. On one portion of the estate the Alta Bert Dredging Company is operating with a \$150,000 bucket elevator dredge, and is said to be earning excellent profits.

The Ashland Stone & Sand Company has been incorporated at Ashland, Pa., with a capital of \$5,000.

The Sharp Sand Company, capital \$10,000, has been incorporated at Moundsville, W. Va., by Thomas Scott, James T. Miller, S. V. Booher and others of that place.

The Miller Sand Company of Pottsville, Pa., has fully equipped its plant and is now making good deliveries of sand and broken stone at the mines in that district.

The Beaver Sand Company has rebuilt its plant between Beaver, Pa., and Vanport, Pa., overlooking the Ohio river. The new plant, which is owned by Cooke & Henderson, building supply dealers of Erie, Pa., has been equipped with individual drive motors of 170 h. p. and an electric drilling system at a cost of \$15,000.

The Standard Sand & Concrete Company at Salem, Ohio, is furnishing all the sand for the sewage disposal plant in that city. It now proposes to rescreen the gravel from the banks near Leetonia to be used instead of river gravel, which has heretofore been shipped from Beaver, Pa.

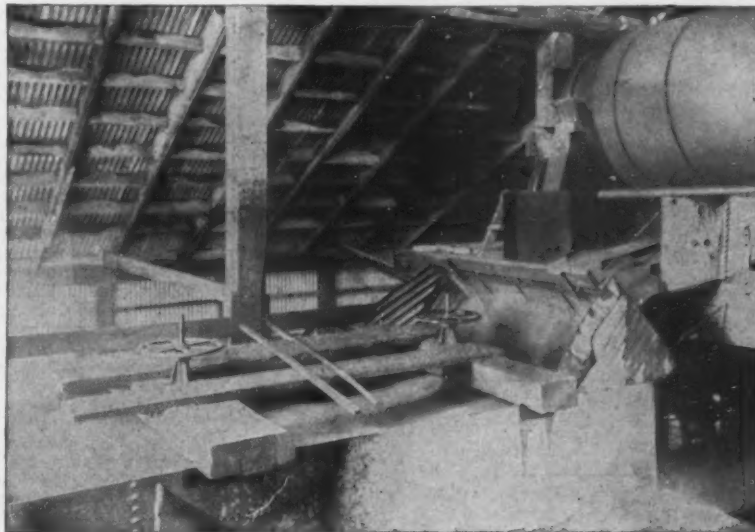
The White Silica Sand Company, of St. Marys, Pa., lately incorporated with a capital of \$10,000, under New York laws, will begin operations on the Fry farm near St. Marys shortly. It expects to ship about three cars a day.

Munsell & Holden, of Detroit, have signed a contract with the Raymond W. Dull Company, of Chicago, for the furnishing of all the equipment and erection of a complete plant at Delhi, Mich. The plant consists of a 1½-yard cableway excavator complete with 50-horsepower electric hoist. The equipment consists of three new-type gravel washing screens which are mounted on the same shaft, sand separators, loading spouts and gates, crusher and motors. The plant is to be built to furnish material for the Detroit market.

The Fisher Sand & Gravel Company is building a new plant at Beloit, Wis. The plant will have a capacity of thirty cars per day. Six washing screens of the new inclined conical type furnished by the Raymond W. Dull Company, of Chicago, will be placed in the plant. All equipment, including crusher, conveyors, screens, spouts, motors, are being furnished by the Dull company. The erection of machinery is also being done by the same concern.

There is a crying demand all over the South for gravel and crushed stone for concrete work, and the supply of both materials is short although there are hundreds of locations for such plants on important railroads that can be bought at reasonable prices. Practical operators of such plants in other parts of the country should look into the Southern situation at once. No section of the United States will grow faster for many years to come than the hitherto dormant South, and concrete is the practical building material everywhere.

The H. D. Conkey Sand & Gravel Company, Mendota, Ill., has purchased the F. D. Hawkins gravel property at Moronts, Ill. Extensive alterations and repairs which will largely increase the capacity of the plant are under way and in contemplation, and about April 10 the company began making shipments of washed sand and gravel. Shipments can be made on through rates via C. I. & S., C. M. & St. P., Illinois Central and Wabash railroads, and all inquiries and correspondence should be addressed to their Mendota office.



(FIG. 5) SAND BOX WHERE COARSE AND FINE ARE SEPARATED.

CHICAGO SAND AND GRAVEL NEWS.

Chicago, June 20.—Conditions in the sand and gravel industry have been excellent this spring. The demand has been much greater than it was last year this time and shows a marked increase this month. Shipments have been exceptionally heavy and with the large quantity of work in sight at present promise to continue so during the season. There is more big factory construction work done than in previous years. The railroads began construction work earlier than usual this year and more of it which will tax the energies of producers of sand and gravel to supply the demand. The Pennsylvania lines are doing heavy elevation track work from Thirty-ninth to Seventy-second street and the Rock Island lines are starting in on elevation work while other roads are contemplating much construction work this season. For this reason it is believed in some quarters that there will be a scarcity of sand and gravel before the season closes. It is also reported that accounts are being paid more promptly than in the past two years. Prices are firm, satisfactory and better than last season. Conditions in this industry were never in a more healthy state and volume of business greater than in past year's indicating that this will prove one of the banner years for producers of sand and gravel.

C. H. Brand of the Atwood & Davis Sand Company said: "Conditions in the trade have been excellent from the opening of the season this year and have become better with each succeeding month. In every direction we see more work in sight than in previous years and the demand which up to the present time has been markedly greater than last year and is increasing rapidly, promising one of the biggest years we have seen. Prices are good and from all present indications will remain so during the coming season. Shipments are heavy and we will have all we can do to supply the demand this year. Collections are very prompt and the outlook for a splendid season is exceedingly bright."

F. W. Renwick, vice-president and general manager of the Joliet Sand & Gravel Company, stated: "Producers of sand and gravel are all feeling 'bully' this year. Conditions are even better and business more brisk than last month, which was one of the best we have had for some years. Shipments are very heavy and the demand, great as it has been since the opening of the season, is increasing, indicating that more work is being done this year requiring sand and gravel than in past seasons. Prices are strong and will be maintained throughout the year, as the demand, from present indications, will find no abatement. Conditions in the trade were never better and the business outlook for the coming season is gratifying."

P. M. Lewis, of the American Sand & Gravel Company, upon being asked what the conditions in the trade were this month, answered: "Business is getting better every day and with the settling of the weather we will continue busier this season than we have been in years. Shipments are very heavy and the demand much greater than we had reason to expect in the early months of the spring season. There is an enormous quantity of work requiring much sand and gravel which will be done this summer, especially construction and repair work of railroads. Prices are firm, giving us this year a reasonable margin of profit, which from all present indications will be maintained to the end of the season. Conditions in the trade are excellent and the outlook is exceedingly bright."

F. M. Richardson, president of the Richardson Sand Company, reported: "Business is satisfactory and fair. We are busy, but not working quite to full capacity, which we will, however, when the weather warms up. Conditions are splendid in the trade and the demand for sand and gravel continually increasing and better than last month. Prices are very firm and good. Everything in the industry looks good and we could not wish for a better outlook for the summer months."

E. S. Davis, of the Lake Shore Sand Company, is well pleased with conditions in the trade, and said: "Business continues as brisk and shipments as heavy as during the month of May. With the large quantity of work in sight to be done this summer the demand for sand and gravel will be much greater than it was last year. Prices remain good and are firm. The outlook is more promising than we have seen it for some time."

The Beach City Silica Sand Company of Beach City, Ohio, has increased its capital stock from \$25,000 to \$35,000.

The Sutherland Springs Sand Company is constructing a plant at Sutherland Springs, Tex., for handling sand and gravel.

PITTSBURGH SAND NEWS.

Pittsburgh, Pa., June 20.—The Keystone Sand & Supply Company reports business very good and is furnishing a large amount of sand for paving and street work.

The Ohio River Sand Company is loading about 25 cars a day at its plants at South Heights, Pa., and Ambridge, Pa., on the Ohio river. Its trade throughout the Youngstown, Ohio, district is especially good.

The Winfield Sand & Mineral Company reports business good and is running its plant at West Winfield, Butler county, Pa., to about full capacity. Shipments to both the Ohio district and into the Pittsburgh territory are very satisfactory at present with this company.

C. L. Neltie, Jr., W. H. Graham, of Pittsburgh, and W. G. Crawford, of Gibsonia, Pa., have organized the White Silica Sand Company of Pittsburgh, Pa., to produce sand for making glass brick and enamel. It was incorporated under Delaware laws with a capital of \$1,000,000.

The Rodgers Sand Company has secured one of the best contracts of the year, to furnish 60,000 tons of sand and gravel for Government Lock No. 4 on the Monongahela river at Charleroi, Pa. The company also furnished all the sand for the big Kaufmann Brothers Department Store company's addition, which will cost some \$500,000.

The Iron City Sand Company has three diggers working on the Allegheny river. It reports river contracts rather slow but its officials say that a large amount of figuring on building projects is being done. The company is furnishing all the sand for the \$100,000 Bash building at Fifth and Market streets.

The Pennsylvania Glass Sand Company, which has plants on the middle division of the P. R. R. and also on the B. & O., has had a fine trade all this spring. Its business is about done now until about August 15th, when the outlook is reported to be good for fall trade.

ILLINOIS SAND AND GRAVEL NEWS.

Springfield, Ill., June 20.—The Illinois Sand & Gravel Company of Petersburg increased its capital from \$10,000 to \$20,000. The company has purchased a new barge 100x20x4, which was sent from Chester on the Mississippi river. A new 150-horse power engine will be used on this barge and the sand will be pumped through eight inch pipes into the railroad cars on the bank. With the present facilities, the company is now loading but five cars a day, but the new equipment will immediately increase the output from twelve to fifteen cars a day. A 600 car order was recently received from Springfield. The company owns about 3,000 feet of water front which has a sand bed from twelve to eighteen feet deep.

Wayne O. McDowell has purchased the sand and cement business of J. K. Otte, at Kankakee.

E. H. Pederson, a gravel shipper at Sheridan, was recently caught between two gravel cars on the Burlington Railroad and suffered serious injuries. His nose was broken, the upper jaw fractured and the face badly lacerated. It was feared at first that he would lose the sight of his right eye.

A. E. Hancock and others will open the gravel pit at Chillicothe formerly operated by the railroad company. Gravel will be sold for building and other commercial purposes. It is reported that new loading machinery will be installed.

The steamer Beder, owned by the Peoria Gravel Company, sank June 6, in the Illinois river. Loss about \$5,000.

LOUISVILLE SAND AND GRAVEL NEWS.

Louisville, Ky., June 20.—The local branch of the E. T. Slider Company is getting ready for an extension of its facilities. A permit calling for the construction of a sand trestle at the plant at 827 Fulton street has been taken out by the company and this will be erected at once. The cost will be about \$700. Capt. J. R. Mitchell, in charge of the local plant, reported business as only fair, though the company is angling for several jobs of some importance. The company is still digging and is turning out its usual amount.

The Patterson Sand Company has been fortunate in having a call on much work in the western section of Louisville. The company has operated its pit at Twenty-sixth and Main streets for several years and is one of the best-known concerns in the city. Residents of that section have specified Patterson sand in many instances, and the company has a good volume of business on hand as the result.

The Kentucky Sand & Gravel Company, of Owensboro, Ky., lost a barge of sand recently, when it sank during a severe wind storm in that city. The barge of sand was valued at \$1,000. The material was partly insured, fortunately for the owners.

THE GRUENDLER PULVERIZER.

For the edification of those interested in the latest types of machinery for grinding purpose, we print on this page a reproduction of a XX pulverizer which has recently been purchased by the A. C. Blowers Lime & Phosphate Co., St. Petersburg, Fla., for grinding marl.

The Gruendler crushers and pulverizers are manufactured by the Gruendler Patent Crusher & Pulverizer Co., 924-928 N. First street, St. Louis, Mo., and are provided with the company's patented baffle bar, which is made of manganese steel. This baffle bar is riveted around the top interior of the machines, which gives the pulverizers a greater capacity. These machines are equipped with single part grates which can be easily removed and replaced within a few minutes.

The Gruendler company builds six different sizes of these machines from 3 to 100 tons daily capacity, requiring from 3 to 40 horse-power approximately to run same.

The Gruendler Improved Pulverizer will crush and reduce bones, tankage, guano, fish scrap, limestone, cement, fireclay, oilcakes, ochres, oyster shells, ores of all kinds, also coal, coke, kaolin, and almost all kinds of materials, to any desired fineness in one operation.

It is stated that the Gruendler machines have been meeting with much success and the manufacturing capacity of the company has been taxed to its utmost. Additional machinery has been installed to care for the increased manufacturing which has been made necessary.

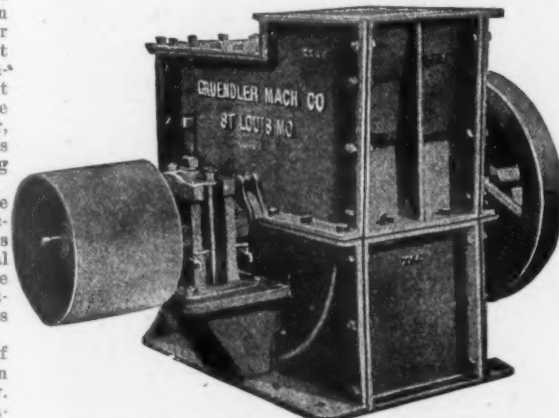
They have also recently installed pulverizers in the following plants: Richards Brick Co., Edwardsville, Ill.; the Earth Products Co., Baltimore, Md.; Colver & Dalcour Co., Lansdowne, Md.; Hansen Products Co., Grand Island, Neb., and the John Hill Co., Cincinnati, Ohio.

A special catalog of this company's improved patented crushers and pulverizers will be sent upon request.

CHANGE IN S. A. COAST REPRESENTATIVE.

A change in Stephens-Adamson representation on the Pacific Coast has recently been made and the firm of Collins & Webb will in future be their western representatives. Both of the gentlemen of this firm have been actively engaged in sales engineering work on the coast for a number of years, and they are widely and favorably known as business men and engineers. Harry C. Collins was formerly with the Allis-Chalmers Co. in the capacity of sales engineer, where he gained a very valuable experience in the design and equipment of rock crushing plants, mines and cement mills. Walter D. Webb has recently been Los Angeles representative for the Midland Bridge Company and previous to that was a member of the El Paso Bridge & Iron Co., of El Paso, Texas. With this combination the interests of Western customers of the Stephens-Adamson Mfg. Co. will be ably served.

M. V. Richards, land and industrial agent of the Southern Railway Company, 1320 Pennsylvania avenue, N. W., Washington, D. C., has prepared a little booklet, fully illustrated, on "Mineral Resources in Southern Railway Territory." This contains thirty pages and is of special interest to quarrymen, sand and gravel operators, etc. Chapters are devoted to the raw materials used in the manufacture of Portland cement, lime, brick and tile clays, etc., which make it of great value to persons seeking information in this direction. The descriptive matter is supplemented by maps showing the extent of the Southern railway and connections.



GRUENDLER XX PULVERIZER.



THE NATIONAL LIME MANUFACTURERS' ASSOCIATION.

Meets Semi-Annually.

OFFICERS.

President—Wm. E. Carson, Riverton, Va.

First Vice-President—J. King McLanahan, Hollidaysburg, Pa.

Second Vice-President—Lowell M. Palmer, Jr., New York, N. Y.

Third Vice-President—Geo. E. Nicholson, Manistique, Mich.

Secretary—Fred K. Irvine, Chicago, Ill.

Treasurer—C. W. S. Cobb, St. Louis, Mo.

Executive Committee—Wm. E. Carson, Chas. Warner, L. Hitchcock, W. M. Hunkins.

THE CALCINING OF ORES AND LIMESTONES.

By J. A. Seager.

The calcination process in connection with the treatment of metalliferous earths and limestones is very largely practiced and it is therefore surprising that more advances have not yet been made in the rapid and economical treatment of material. The cost of such a process depends not only on the amount of fuel consumed per ton of ore treated, but also upon other factors, such as size, and cost of plant for a given output, which in turn depends upon rapidity of action, and also cost of maintenance of the plant and state or quality of the finished product. All these considerations point to the fact that the best calcining operations can be performed in a plant which is capable of giving rapid continuous treatment on a gravity system with as free a movement as possible to the ore or limestone during the course of treatment in order to preserve uniformity of size in the treated product.

A plant which has been designed on somewhat novel lines to meet these conditions is known as the "Lightning" kiln, which is the design of Mr. W. J. Willis, of Tipton, England, and the general construction of which is shown in the sketch in Fig. 1. The peculiarity of the kiln is that it consists of a series

of reverberatory furnaces arranged above one another in such a way that a strong deflection of heat is produced by the side walls and arches, this heat being directed upon the material falling upon the inclines. A rolling action takes place as the material passes from one incline to the next, and in this way the uniformity of treatment is secured by fresh surfaces of the material being continuously exposed to the action of the heat. Although for the sake of safety poking doors are arranged at each level in case any clogging should take place, it is found in practice that this does not occur, the material passing from stage to stage with regularity and uniformity, and at the base of the kiln the calcined material is discharged as required into trucks with the minimum of manual labor, charging occurring of course from another series of trucks on the top level of the kiln.

The roasting is accomplished by blast furnace waste gas producer or coke oven gas by the use of coal or slack. Where blast furnace gas or other gaseous fuel is employed this fuel can be admitted at more than one level and a further control of the rate of calcination at the various zones can in this way be effected. There is no complication in the mechanical plant used in connection with the arrangement, as gravity is relied upon, practically the only expense in connection with the process being the raising of the material to the top of the kiln. The five-chamber kiln shown gives a very fine output with great economy, the material passing from plane to plane with a rolling action, the gas passing upward from chamber to chamber, and thus their heat is fully utilized. The planes are constructed of cast iron protected by a thick layer of heat insulating material which is found to preserve them from deterioration. There is therefore nothing in these furnaces which can speedily get out of order, or which requires skilled attention to maintain.

Some of the advantages of the arrangement are that it is equally adapted to iron ores, limestone, pyrites, etc., and can deal with the widest range of output without interfering with the uniformity of quality or cost of production, and it can if necessary be worked intermittently. No clinkering is required and the process is easily regulated. It occupies an extremely small ground space per ton of output, as will be shown by the operation of a plant at some ironworks near Wednesbury, where a kiln of this type 14 feet 6 inches by 12 feet 6 inches in overall cross section and 25 feet in height, being fed by waste gases from the iron works and with an 18-foot stack for draught above the kiln, was able to deal with some 2,000 tons of raw iron stone per month. The height of this kiln was somewhat limited and it is probable that with a higher kiln still more remarkable results could have been obtained. Another point is that these kilns can be placed close to the required point of delivery of the material, the calcine ore being fed directly into charging barrows or hoppers. As the material is free to expand, the minimum of "smalls" is produced: it is impossible for the workmen to draw unevenly and owing to the small consumption of fuel which is found necessary, the kiln can easily be claimed to be most economical and efficient. There is therefore no doubt that in this department of iron works practice an important improvement has been effected.

Lee, Mass., May 15.—A new company composed of Albany men, to be known and incorporated as the Standard Lime Company, has leased from the heirs of the Michael Deely estate the quarries on Pleasant street, has bought the Hosea D. Parker farm on the opposite side of the highway, and will begin at once the erection of two large kilns to be used in connection with the kiln now on the property and a plant for the hydrating of lime. The new plant will probably employ about fifty men for a time, with excellent prospects of increasing.

The Keystone Lime and Stone Company, of Port Deposit, Md., a Maryland corporation, was sold last Thursday to J. C. Budding, of Lancaster, Pa., and F. R. Smart, Jr., of New York. The property contains over 300 acres of trap rock and is said to be the largest and best deposit found in the state of Maryland. The capacity of the present plant is 20 cars per day, and the new proprietors have plans drawn to enlarge the plant to twice its present capacity. The main office of the company will be the same as the Lancaster Lime and Supply Company, and the Silician Products Company, 142 North Queen street, Lancaster, Pa.

BROCAS REVIEWS LIME SITUATION.

H. A. Brocas, general sales manager of the New York office of the Kelley Island Lime and Transportation Company, and president of the Lime Manufacturers' Association of New York, has reviewed the lime situation in the local market in his usual interesting manner.

"A barrel of lime has until recently been almost a despised commodity in this market. This condition came about because a large amount of lime was packed in second-hand containers varying in weight from 175 pounds to 250 pounds, and the greater part of such lime was very low in efficiency. Furthermore, a large quantity of lime shipped into this market, packed at the kilns in new containers, was of weights of wide variance.

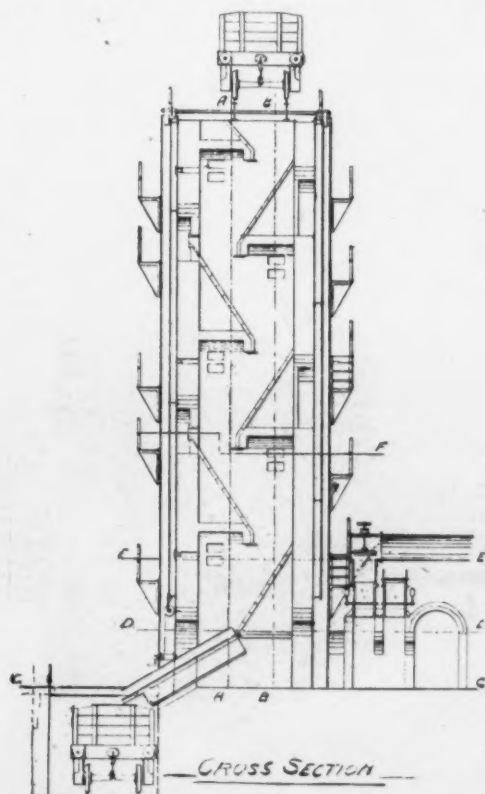
"Strange as it may seem, the consumers of lime, the masons and plasterers, paid little or no heed to the weights of the barrels or the quality of lime contained therein. Their only stipulation was that the cost per barrel be small.

"About three years ago the principal shippers of lime into this market formed themselves into an organization known as the Lime Manufacturers' Association of New York. They realized that it would be necessary to pack their lime at the kilns in new barrels of a uniform weight. In order to determine just what weight of package would be most suitable, they canvassed the masons, plasterers and dealers in building materials for their opinion on this point. The result of this canvass showed everyone interested in lime to be in favor of a package weighing 300 pounds gross.

"The members of the Lime Manufacturers' Association now ship their product into this market in packages weighing 300 pounds, gross, packed at the kilns. The weight is always plainly marked on the barrel. This, of course, is a very long step in the right direction and it assures the user of lime that when he purchases goods bearing the label of a member of the Lime Manufacturers' Association of New York, he is sure to get a package weighing 300 pounds gross. Furthermore, the lime it contains is guaranteed to be composed of not less than 85 per cent combined oxides.

"On February 1, 1914, there will go into effect a new law within the state of New York relating to various commodities sold in packages and otherwise, which will make it compulsory to place the correct weight of a barrel of lime on the barrel in figures easily seen. This law is directly in line with the principles laid out by the Lime Manufacturers' Association of New York, for their own protection as well as that of the users of their products, and it is the intention of the association to cooperate with the Bureau of Weights and Measures and do everything possible to see that this law is enforced when it becomes effective.

"The production of lime in the United States has been very much at a standstill for the last three



ITS ALL IN THE FINISH

"WHITEKOTE IS THE RIGHT COAT"

or four years. The larger use of gypsum plasters and possibly the low price on Portland cement during that period has had something to do with this condition. Of late the producers of lime have been casting about for a means to extend the uses of their product. The marketing of lime in the form of a dry powder (hydrated lime), has shown very clearly that a field for the use of lime can be greatly extended with this medium. In fact, the production of lime in 1912 will more than likely show an increase over any previous year and this increase can be largely accounted for by the constantly gaining recognition of the merits of hydrated lime.⁷⁷

Grand River Lime Company (P. J. Carey, W. N. Franklin and others), Muskogee, Okla., contemplates increasing daily capacity of lime works from 75 barrels to 200 barrels.

The Berkeley (W. Va.) plant of the Security Cement and Lime Company is one of the busiest propositions in Berkeley county. All three of the immense kilns are in active operation and turn out something like 150 tons of lime every 24 hours. The quarries are daily shipping about 1,000 tons of stone for railroad uses and about 500 tons for fluxing purposes.

The Standard Lime and Stone Company, Fond du Lac, Wis., is said to be the first lime manufacturing company to introduce the gas method of burning lime in Wisconsin. At the present time E. Schmatolla, Berlin, Germany, is at the company's quarries at Knowles supervising the installation of gas burning equipment in two kilns where the system will be experimented with.

Garwin H. Mace has sold his interests together with those holding stock in the Cream City Lime Co., and the plant at Germantown, Wis., has passed to the ownership of Ph. G. Kraemer, of Rockfield. Both the kilns at the two named places will be operated by Mr. Kraemer, who several years ago engaged in the manufacture of lime and has been very successful in the business.

PANAMA-PACIFIC EXPOSITION.

San Francisco, Cal., June 20.—Contracts for construction work on the Panama-Pacific Exposition have been coming out at frequent intervals since last fall, and have been especially numerous for the last month. Within the next few weeks contracts will have been let for the construction of all the large exhibit palaces, though after that there will be a great deal of work on special buildings for the various concessions, as well as in finishing the grounds, roads, etc. Concrete foundations are now being laid for several of the palaces, but the only one nearing completion is the Machinery building, the largest on the grounds. The heavy timber framework is completed for the greater part of this building, and is being covered with wire lathing and staff in imitation of travertine stone. Paul E. Deniville, expert on the staff and plaster work, has been here for some time instructing the workmen in the method of obtaining travertine effects. Mr. Deniville has now installed a workshop in the Machinery building, and has about a hundred plasterers, moulders and modelers working under his direction. Models, casts and ornaments have already been completed and are being set on the north wall of this building. An idea of the size of the building can be obtained from the dimensions of the pillar cornices, which are in some cases more than 12 ft. in diameter.

The Exposition management has announced that no charge will be made for space for exhibits, but that, to be reviewed for award, an exhibit must be in its proper class and placed in the exhibition palace provided according to classification. In the Liberal Arts building, in the group of civil and military engineering, will come building materials, lime, cement, plaster, artificial stone, etc., equipment and methods of production; methods and apparatus for testing materials; preparation of building materials; equipment for and methods of city sanitation. Other groups in the same building will be: models, plans and designs for public works; architecture and architectural engineering.

In the building of Manufactures and Varied Industries will be the group of Ceramics, including raw materials; equipment and methods used in the manufacture of earthenware; machines for making brick, pottery, etc.; brick, tile and terra cotta.

In the building of Mines and Metallurgy will be a group devoted to the working of mines, ore beds and stone quarries; also a group for minerals and stones, and their utilization, including equipment and processes for crushing, separating, washing or drying rocks, clays, etc.; rocks which produce lime and cement, processes and appliances used in the preparation of lime and cement, their products and uses; refractory rocks, fire clays and sands; clays, fuller's earth, kaolin, etc.

THE A. & R. MOTOR TRUCK.

The A. & R. truck is backed by a successful engineering organization, with the obvious advantages of its long experience and extensive facilities. In mechanical detail every feature is the result of painstaking selection, conservative engineering practice and careful inspection. All parts subject to wear are especially provided for in order to meet the most exacting conditions.

The smoothest and most positive of control is claimed by its makers, the clutch being so designed that the most inexperienced driver can operate the truck without serious jars or strains upon the transmission. The gear locking device is unique and exceptionally efficient.

The steering control is so arranged that the truck may be turned as easily with a heavy load as when empty. The length of the wheel base and small overhang, together with the steering connections, make it possible for an A. & R. truck to be turned around in practically its own length and therefore readily handled in narrow and crowded thoroughfares.

The low center of gravity of the chassis makes it possible to drive under all road conditions, follow vehicle tracks over heavy roads and reduce swaying to a minimum.

The springs are extremely easy, and heavy to withstand overloads and exceptional road jars, each leaf being provided with a central groove, allowing graphite or oil lubrication. The spring shackles are unique in that they are noiseless, with large bearing surface, practically unbreakable, and it is never necessary to adjust them for wear.

The front axle is a solid one-piece drop forging of I-beam section, made of special heat treated steel, the rear axle being a solid one-piece forging of heat treated steel of most liberal dimensions. Two heavily constructed radius rods transmit the tractive effort to the main frame, thus relieving the springs of all strains other than that of carrying the load.

The motor in the A. & R. truck is of the most economical type, positive and practically noiseless. The oiling system combines both the splash and the forced feed systems. An indicator mounted on the engine base shows at all times the flow of oil which is automatically regulated according to the motor speed.

The cooling of the engine is effectively accomplished by means of a gear driven centrifugal pump and a horizontal tubular honeycomb radiator.

The practical design of this radiator is particularly efficient for heavy truck service.

Each A. & R. truck is built for a certain maximum speed and a special governor prevents the proper speed of the motor being exceeded, and thereby damage to the engine by racking through the carelessness or inexperience of the driver.

The engine, transmission and jack shaft in which the differential is housed are mounted on the same subframe, thereby insuring direct drive and avoiding the low efficiency of indirect line of power.

The sprockets are large with especially deep teeth, thus eliminating undue wear upon the chains.

A study of the A. & R. truck shows clearly the large factor of safety employed at every point; and the life of the truck has been increased still further by skilfully applying the chemistry of alloy steels.

Economy in Operation.

Statistics covering A. & R. auto truck for six months—September 13, 1912, to March 13, 1913:

Number of tons delivered	2,616
Number of working days	146
Number of miles traveled	3,904

Gasoline consumed—1,110 gal. at 15½¢.....	\$ 172.05
Oil consumed—50 gal. at 28½¢.....	14.00
Tires	59.50
Insurance	155.00
Interest on investment.....	105.00
License	14.55
Depreciation 12½ per cent for six months..	425.00
Wages, driver and helper.....	678.90
Wages, extra help estimates.....	50.00

Total

Cost per ton .....	.64
Cost per mile for deliveries.....	.42½
Average tons per day	18
Average mileage per day.....	27
Average miles per gallon of gasoline.....	3.6

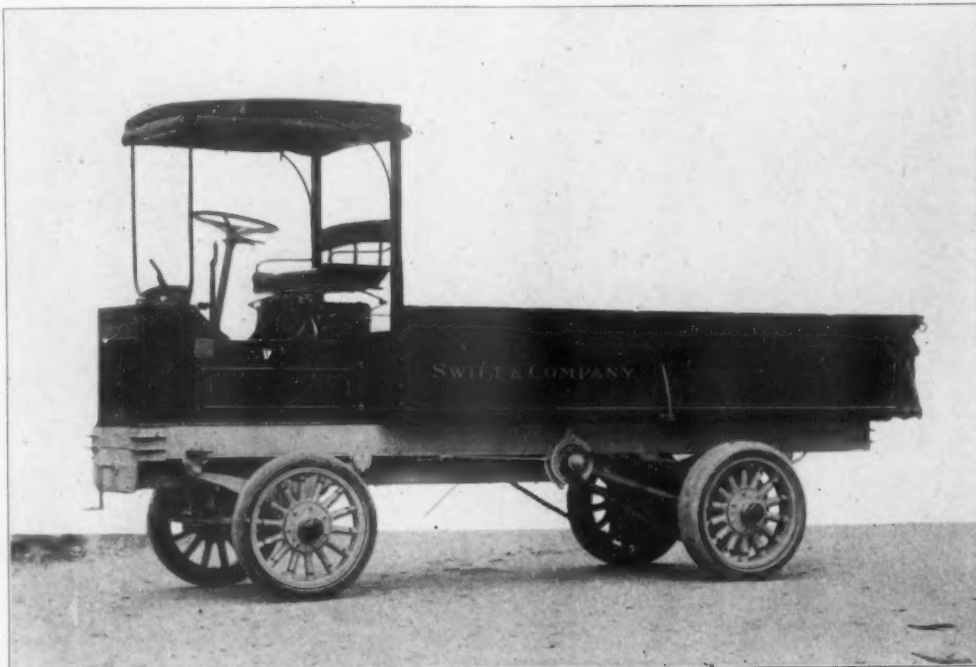
5-ton cost per day, figuring 300 days per year..\$11.16
5-ton cost per day, figuring 365 days per year.. 9.41

The sales office of the Abendroth & Root Manufacturing Company, builders of the A. & R. motor truck, is located at 50 Church street, New York, N. Y. Its general offices and factory are located at Newburgh, N. Y. The company has recently issued an attractive booklet describing the A. & R. truck, showing illustrations of its various models. This booklet will be mailed free to interested parties.

ARTIFICIAL MARBLE.

The following are directions for making artificial marble: 1. Burnt gypsum is saturated with a solution of lime in alum water, burnt again, ground finely, or rather pulverized, adding one-twelfth by weight of the gypsum of alum; cast in the mold. These harden very slowly, but attain the hardness and transparency of marble. Different pigments may be added to obtain different colored marble.

2. Pieces of burnt gypsum the size of a fist are put for three hours in a 12 per cent solution of alum in water of a temperature of 85 to 104 degrees Fahr., burnt again, pulverized, adding one-sixteenth powdered alum, and lastly worked into molds with water containing one-sixteenth sal ammoniac for each part of gypsum. Castings made of this combination possess great hardness and brilliancy, and it may, therefore, be used for fine statues.



A. & R. MOTOR TRUCK IN USE BY SWIFT & CO., CHICAGO, ILL.



AMENDING BUILDING CODE.

Mandatory Ordinance Hailed with Much Satisfaction by Chicago Plaster Industry—It Became Effective Last Month, May 26th.

Recently there has been enacted into the building code of Chicago an amendment to No. 605, a provision which requires that in all buildings of ordinary construction in the city of Chicago all walls and ceilings of every room used for habitation or living purposes, including stores, must be plastered with not less than two coats of plaster on wood lath, including all basement ceilings of all class 6 tenement houses. Up to the time when this amendment to No. 605 was passed in the city council all sorts of substitutes were used such as metal ceilings, "compo" boards, etc.

The effect of this ordinance will be that all such walls and ceilings must first be plastered with two coats. It is conceded on every hand that this amendment to the ordinance of the building code is a just recognition of the merits concerning plastering both from a sanitary and fireproof standpoint. The city council committee painstakingly delved into the effect the amendment before it would move in making for a safer construction of buildings, which was discussed thoroughly from every possible viewpoint, and with the hearty endorsement of the city building department made it possible to incorporate this amendment into the building code. This amendment assures a reasonable protection to occupants of buildings of ordinary character at the lowest possible cost, consistent with fair building construction. The passage of this ordinance was hailed with much satisfaction in the plaster industry of Chicago, being a protection in many ways to the craft for the reason that it will prevent in the future, particularly in all speculative buildings, the substitution of inferior makeshifts guarding sanitary and fireproof conditions. The amendment to this section of the building code No. 605 is meritorious and is a safeguard to the owner as well in that it provides specifically that all lath shall be spread not less than one-sixth of an inch apart, with joints broken not less than each seventh course; also that such lath must be nailed to each bearing with not less than a three-penny nail; further, that no dirt or loamy sand shall be permitted to be used in such mortars; furthermore that such lath and plaster must finish to a total thickness of seven-eighths of an inch. It is anticipated that the reasonable fulfillment of the code requirements will have the effect of preventing the falling, cracking as well as the "skinning" of plastering which is a menace and a detriment to all parties concerned.

This amendment became effective the 26th day of May, last. In speaking of the effect it will have on the plastering industry in Chicago and in the construction of buildings Oscar A. Ream, of Zander, Ream & Co., one of the oldest and most prominent plastering firms in the West, said: "The amendment will probably be construed to carry with it the stamping or approval of the building department of this city of all plastering specifications on buildings of ordinary construction. This is a well merited regulation concerning plastering. So far as we know Chicago is the first city in the union adopting a mandatory ordinance on plastering and it was much needed to eliminate abuses in the way of makeshifts of inferior character which proved a detriment to our industry. Plastering which enters so greatly into the finish of our great buildings and possesses so many features essential to the comfort and safety of the occupants of residences and public buildings needs strict regulation which in the laws now pending before municipalities and legislatures are receiving support generally throughout the country. Specific laws relating to plastering are now pending before the legislatures of the states of Pennsylvania and of New York. The proposed law in Pennsylvania makes for the requirement of three coats of plastering together with proper inspection by competent and experienced plasterers."

The methods employed by the great plastering concerns of Chicago of the present day in finishing the interior of the great structures erected in the last decade both as to the material used and applying it to walls and ceilings were unknown a quarter of a century ago. Patent calcine plasters

known as hard wall plasters are used exclusively. These hard wall plasters are made from plaster of Paris—calcined gypsum rock, mixed with a retarder to hold the "setting up" two to four hours, set very hard and are of great tensile strength, two elements which permit rapid work in finishing structures and two most important features in modern building. The plastering of walls and ceilings of structures requiring tons and tons of plaster is done and finished by the great firms in the industry in weeks, where a decade ago it took months to do the same work.

Perfection has practically been reached in the product of plaster, but improvements in machinery in the great plaster mills of the country, of which those at Fort Dodge, Iowa, of the U. S. Gypsum Company, are perhaps the largest and best known in the country are still being made and enables the manufacturer to produce this product more economically and in a shorter period of time than a few years ago.

The plaster industry in Chicago is experiencing a busy year and is doing the highest class of workmanship in plastering, meeting every requirement of rapidity in work, the time of which it is now believed cannot possibly be shortened in the near future.

NEW PLASTER BOARD

A stucco and plaster board has been developed and tested by the Mastie Wall Board & Roofing Co., of Cincinnati, O., as patented by Allison Bishopric, president and general manager of the company. By the use of this stucco and plaster board no metal laths are required, the necessary background being provided by the boards, which are formed of laths embedded in asphalt mastie. These boards are nailed to the studding and the beveled shape of the laths forms a key which holds the stucco and plaster firmly to the asphalt mastie backing. It is stated that the use of this material also gives a strong background for cement. It is said that they are economical in cost and require a minimum amount of cement to give proper walls. The board is made in sheets four feet square, ready to be nailed to the bare studding, thus making the walls ready for cement or plaster.

UNIQUE PLASTER JOB

San Francisco, Cal., June 20.—Architects J. J. Donovan and Geo. E. Ashley of the Oakland city hall, now nearing completion, have solved one of their problems by the use of a plaster mixture. They wished to make the interior of the dome over the grand staircase, lobby, etc., of limestone, but found the stone too heavy for the purpose. They have accordingly used a plaster made of powdered limestone mixed with cement, which gives a very satisfactory surface, closely imitating the appearance of limestone.

TRUS-CON PLASTER BOND.

One of the many meritorious products of The Trus-Con Laboratories, Detroit, Mich., is Trus-Con Plaster Bond, which is a special dampproof coating applied to the interior of exposed brick and concrete walls. It provides a continuous dampproofing element in the wall. Plaster can be applied directly to the coated surface.

J. M. Richardson, Lock Box 202, Aiken, S. C., will establish \$25,000 plant for manufacturing hard wall plaster; probably at Augusta, Ga.; machinery has not yet been purchased.

Spruce lath has been coming forward in considerable quantities since our last report, and in consequence prices have weakened slightly. It is quite generally understood, however, that if there is any period of the year when a surplus of lath and lower prices might be expected, it is around the first of July. If the reports issued earlier in the season as to the shortage of spruce logs at the mills were at all correct, it is not to be expected that shipments will continue as plentiful, or that there will be any serious decline in prices.

The buildings of the Consolidated Wheatland Land Plaster Company, situated at Wheatland Center on the Oatka, four and one-half miles northeast of Caledonia, N. Y., were totally destroyed by fire June 6. The fire started over the kiln for drying the plaster. The loss will be over \$25,000, which is well insured. The loss to the company by the stoppage of work will be severe, as it will take some time to replace the ruined buildings. The buildings are owned by Caledonia capitalists, J. C. Honk, W. J. Williams, Charles Plaie and others being large stockholders.

PITTSBURGH PLASTER NEWS.

Pittsburgh, Pa., June 20.—Plaster firms in this vicinity are well satisfied with this year's business. It will make a substantial gain over 1912. The plants are all busy although they are not being run to capacity. Building operations outside the city are calling for good supplies of plaster and down East there is a steady and constantly growing trade for the Pittsburgh concerns which are equipped to take care of it. Prices seem to be about the same as last month.

The Colonial Wall Board & Plaster Company is making great headway this year in marketing its Colonial wall boards. These are being used in all kinds of buildings much more extensively than ever before. Architects and contractors throughout the Pittsburgh district are well pleased with it and are specifying it in a large proportion of their jobs. The company also reports a very good trade in plaster and says that it is holding up well. Its totals so far are away over those of 1912. Its plant at Ford City, Pa., is busy and the company is making nice shipments in eastern Pennsylvania.

The Crown Wall Plaster Company, whose plant is located at Braddock, Pa., up the Monongahela river, reports business considerably better than in 1912. This month is showing a nice gain also over May business. Prices were about the same as they have been the past three months and the company is running its plant well up to capacity.

The Allegheny County Wood Fibre Plaster Company at McKees Rocks, a West End suburb, is doing a nice business this summer and reports that it is gradually getting better. Its plant is fairly busy at present.

LOUISVILLE PLASTER NEWS.

Louisville, Ky., June 20.—The Southern Wall Plaster Company, which had the contract for the new building of the Young Men's Christian Association at Third street and Broadway, is in financial difficulty, it is said, and may quit business. The company, unable to pay its plasterers, has thrown up the sponge, and the bonding company paid the laborers and probably will complete the work of plastering the new structure, it is alleged. E. J. Kolross is president of the Southern Wall Plaster Company, which is located at Floyd and A streets and is about ten years old. D. M. Wheeler is vice-president and R. F. Wheeler, secretary and treasurer. Al Kirschdorfer is foreman of the contracting department. The Southern probably will not resume work on the structure. Wells Brothers, of Chicago, general contractors, is said to have refused to advance the company more money alleging that it already had advanced all but 20 per cent of the stipulated price. The Southern, it is said, took the contract for a figure which made it practically impossible to make any money. Its bid was about \$6,000 lower than any other. About \$3,000 worth of work remains to be done on the Y. M. C. A. building. The Southern was formed about ten years ago. It has undergone a number of changes, as far as identity of stockholders has been concerned. M. J. Bannon, a prominent sewer pipe and brick manufacturer, formerly was interested in the concern but recently sold out.

B. J. Campbell & Sons, operating the Kentucky Wall Plaster Company, are running along smoothly with a fairly good volume of business on hand. While the situation could be improved on, officers of the company believe that the year as a whole will come out in good shape, and are not worried over the temporary slump.

With the completion of the new bunkers of the Pacific Coast Gypsum Company at Gypsum, Wash., the company's shipments of the rock will be greatly increased and it is expected that the Tacoma plant will now receive between 4,000 and 6,000 tons of gypsum a month.

Lorbeer Brothers, Pomona, Calif., principal owners of the Laurelotte ranch, north of La Verne, have practically completed plans for developing a large deposit of gypsum or shale rock in the hills there. The material will be used in the manufacture of ornamental tile.

Moundsville Wall Plaster Company, Wheeling, W. Va., has a number of men at work raising the warehouse of the company along the main line of the Baltimore & Ohio railroad, between Tenth and Eleventh streets. The building and contents were affected by the flood this spring and it is being raised several feet and a new concrete foundation laid.



LOUISVILLE CLAY NEWS.

Louisville, Ky., June 20.—The new branch plant of the Louisville Fire Brick Company, located at Grahn, Carter county, has been put under way and is turning out 30,000 daily. About 90 men are employed by the branch, which is working smoothly. J. H. Bell, who has charge of the main plant in this city, also will have the supervision of the Carter county branch.

New equipment is to give the Louisville Pottery Company a larger output. President S. O. Snyder is looking over the market and will purchase several special machines in the near future. The company is one of the few of the kind in Louisville. It devotes itself entirely to clay products, such as jars, jugs, flower pots, etc.

The plant of the Coral Ridge Clay Products Company will be ready to go into operation in a couple of weeks. George H. Fiedler, general manager of the company, is giving all of his attention to the completion of the new plant, and hopes to have things in running order by the end of June, at the latest. The offices recently established in the Inter-Southern building will be maintained.

The People's Brick Company, of Portsmouth, O., is now filling its orders satisfactorily, shipments having arrived in this city recently. The company was badly crippled by the spring floods in Ohio and only recently resumed operations. It holds a contract for a half-million brick for the city of Louisville.

R. Brink Tyler, head of the R. B. Tyler Company, of Louisville, was one of the local business men who recently invaded eastern Kentucky on the annual trade extension excursion of the Louisville Commercial Club. A special train carried the excursionists who were warmly greeted at the various stops. Mr. Tyler, who himself represents an imposing list of brick manufacturing companies, saw a number of plants while on his journey, one of the largest being that of the Ashland, Ky., Fire Brick Company.

A possibility in Louisville brick circles is the revival of the old Brick Club, which died of inertia some time ago. Joe Nevin, plant manager of the Louisville Brick Company, was president of the club at the time of its demise, while T. Bishop, of the Southern Brick & Tile Company, was secretary. Both officers are willing to take up the reins again, should members of the trade indicate their approval of the reorganization. An organization of brick men would doubtless find plenty of work to do, and it is hoped that the movement will result in the placing of the club on an active basis.

S. B. Kitchen, Scotland Neck, N. C., will build brick plant.

White Brick Co., Dallas, Texas; capital stock \$30,000; incorporated by T. E. Ballard, J. L. Odell and Henry Johnson.

Virginia Hydraulic Brick & Stone Co., Richmond, Va.; E. F. Atwood, president, organized with \$50,000 capital stock to manufacture bricks, building stone and paving blocks.

North Louisiana Brick Co., Ruston, La., has been incorporated; J. A. Jimerson, president; B. S. Braswell, vice-president; N. McDonald, secretary-treasurer; purchased plant already in operation.

Composite Brick Co., Jacksonville, Fla., will occupy erected building and alterations to cost \$2,000; install full equipment for daily capacity about 40,000 common and face bricks; president, W. J. Carmichael, Willoughby, O.; vice-president, D. I. Davis, Chicago, Ill.; secretary, treasurer and manager, E. R. Wood, 3027 Hubbard street, Jacksonville. The company is incorporated for \$50,000.

A. H. Baer, of Belleville, Ill., has prepared and compiled for the use and guidance of municipal engineers of the State of Illinois a book on Forms for Special Assessments. This is a revised edition presented with the compliments of the National Paving Brick Manufacturers' Association, which was put to great expense in publishing same. The book contains 107 forms applicable to special assessment proceedings and is of inestimable value to officials who are particularly interested in improvement procedure under the law of Illinois.

PITTSBURGH CLAY NEWS.

Pittsburgh, Pa., June 20.—E. C. Clark, of the Kittanning Brick & Fire Clay Company, makes a very level-headed report of the situation as affecting Pittsburgh. "The Pittsburgh brick market," he says, "is perhaps a little better than the average town throughout the country except Birmingham, Ala. It is not what it should be and it is far from being what it used to be. Labor conditions are bad and demand is not aggressive. Our company is not crowding its capacity and many other large companies in this territory are following the same policy."

The Harbison-Walker Refractories Company, with offices in the Farmers' Bank building, announces that it is pretty busy. In some lines orders are not coming forward as they should. Customers want delivery in most lines where orders have been placed. The company's plants are not being run to full capacity as demand is not keen enough to warrant this and labor troubles are still more or less handicapped.

F. C. Lucas has bought the plant and clay lands of the Castanea Brick Company and the name of the plant has been changed to the Lock Haven Brick & Tile Company. Following are the officers: Charles H. Long, Mill Hall, president; Mayor George Kreamer, Lock Haven, vice president; F. C. Lucas, Lock Haven, secretary and treasurer.

James M. Porter, one of the best known paving brick men in this section, was on a business trip to Washington, D. C., last week and brought back two very nice orders. He is making some splendid contracts for paving brick in western Pennsylvania this year.

The Pittsburgh-Callery Brick Company reports things running along nicely. Its plant at Callery Junction on the B. & O. is running about full capacity. Many projects, the company reports, were slow in starting, and there is lots of figuring done now, and barring labor troubles it looks as if the summer would produce some good business.

N. R. M. A. MEETING.

The meeting of the National Refractories Manufacturing Association held at the Fort Pitt Hotel in Pittsburgh, Pa., May 20th, was attended by representatives of many companies east of the Mississippi river. A. V. Bleininger, director of the United States Bureau of Standards, made a splendid address on testing and methods of improving inferior clay. Other addresses were made by C. S. Reed, Chicago; E. M. Allen, Chicago; J. L. Green, St. Louis; J. J. Brooks and J. H. McFeely, of Pittsburgh. Col. H. D. Savage, of Ashland, Ohio, is president, and J. H. Cavander, of Chicago, is secretary of the association.

The next meeting will be held in Cleveland January 24th. Committees were appointed to work for the universal standardization of sizes and shapes of brick and it is expected that their report will greatly advance the brick industry.

The New Castle Brick & Clay Company, capital \$10,000, has been formed at New Castle, Pa., by Walter B. Sheaffer of that city and others and will quarry clay and limestone on quite a large scale.

Federal Builders' Supply Co., Augusta, Ga.; capital stock \$150,000; organized by Henry Yewell Bready, Union Trust building, Baltimore, Md., and others; purchased 141 acres land and will develop clay deposits; manufacture bricks and building tile.

The Pratt Building Material Co., with offices in the Hearst building, San Francisco, is a new concern carrying a general line of building material, such as brick, tile, sewer pipe, sand, rock and gravel. C. F. Pratt, well known in California building circles, is at the head of the new firm, and although in business only a month, the company is enjoying a splendid patronage with a number of good sized orders on its books. The company has the exclusive handling of a California-made pressed fire brick, and partition tile, also a high grade concrete gravel, the latter coming from the famous Austin creek pit.

If there is any one article handled by the building material dealer of which there seems to be a decided shortage, it is sewer pipe and flue linings. Reports from the factories indicate that the recent advance in discounts has caused no diminution in the number of orders. No accumulation of stocks is noted, and orders are coming in faster than the goods can be made. There is no question but that the advance on pipe so far this season has been greater than on any other class of building material. Yet there is a continued heavy demand, and relief in the way of lower prices does not seem to be in sight.

REORGANIZATION OF ALLIS-CHALMERS CONCERN.

As noted in our May issue, Allis-Chalmers Manufacturing Company, on April 16, 1913, took over the properties and entire operation of the business of Allis-Chalmers Company, which latter company during the past year has been in the hands of a receiver. This change marks the end of the Allis-Chalmers receivership and the commencement of the administration of the new company.

Beginning with April 16th all business has been and will be conducted by Allis-Chalmers Manufacturing Company, which starts out under conditions promising success. The new company will operate all departments of the business as conducted by its predecessor and will carry out all contracts on hand for the sale of its products. It has no bonded indebtedness nor liabilities of any character. In addition to all assets of the former Allis-Chalmers Company the new company has over four million dollars additional cash for new working capital which has been raised through the recent reorganization.

The new company will continue to operate the large West Allis Works and Reliance Works at Milwaukee, the Chicago Works, and in addition will control the operations of The Bullock Electric Manufacturing Company, at Cincinnati. Otto H. Falk, of Milwaukee, who for the past year has been receiver of the Allis-Chalmers Company and under whose management as receiver the operations of the business have shown marked improvement, has been elected president of the new company. The general offices will be at Milwaukee.

All properties of the new company are in good condition and its inventories and working capital on a sound basis. Its engineering departments are well equipped and the various lines of product now turned out are of the highest quality. Under these conditions it is believed that with the present careful and intelligent management the operations will show substantial profits.

S. B. Stevens of Clinton, Iowa, contemplates establishing pottery.

West Point Brick & Lumber Co., Elizabethtown, Ky., has increased capital from \$40,000 to \$50,000.

The Fond du Lac (Wis.) Pressed Brick Co. property has been sold to F. H. Bechaud for \$15,000.

J. H. Callahan has succeeded C. T. Wilson as owner of the New Sharon, Iowa, brick and tile works.

Samuel Thomas and Carry Eldredge have opened a brick and tile plant one mile north of Oliver, Ill., in Edgar county.

C. F. Lutes of Oklahoma City, Okla., has purchased a brick plant; will install additional machinery and operate.

Graham Progressive League, Graham, Va., is considering establishment of brick plant. Address Walter Graham, chairman City Interests Committee.

G. W. Priest, West Concord Brick & Tile Plant, West Concord, Minn., is making a large number of improvements.

Pontoto Brick, Tile & Stone Co., Roffes, Okla.; capital stock \$50,000; incorporated by B. F. McKelvy of Roff, W. W. Kitchens of Ravia, Okla., and others.

Wise County Brick Co., Bridgeport, Texas, C. W. Martin, president, has purchased a stiff-mud brick plant from Altoona Vitrified Brick Co. of Altoona, Kan., and will re-erect it at Bridgeport.

There is some indication that paving brick is at last to get a foothold, or at least a thorough test, in San Francisco, the pavements there having been formerly either asphalt or basalt blocks. The Denny-Renton Clay & Coal Company, Seattle, Wash., is about the only firm on the Coast able to ship paving brick economically to that market, and has for several years made efforts to interest the city authorities in its product, which has been largely used in the Puget Sound district. Some time ago the company laid a block of its brick free of charge in Powell street, near the St. Francis hotel, and this is holding up in fine shape. It is now proposed to lay some of this pavement on a block south of Market street, where it will be tried under heavy teaming, and the Denny-Renton Company has secured a contract from the city for 100,000 paving brick at \$47.50 per M.

SAND-LIME BRICK

SAND-LIME BRICK ASSOCIATION
Meets Annually
OFFICERS.

S. O. Goho, Harrisburg, Pa. President
F. R. Allen, Toronto, Ontario. Vice-President
W. E. Plummer, Jr., Buffalo, N. Y. Secretary
J. L. Jackson, Saginaw, Mich. Treasurer

EXECUTIVE COMMITTEE.

G. Silvester, Calgary, Alta. Canadian Division
E. G. Chapman, Minneapolis, Minn. West'n Division
W. M. Burchfield, Rochester, N. Y. Eastern Division
H. H. Tift, Tifton, Ga. Southern Division
W. L. Penfield, Willoughby, O. Central Division

INCREASE IN SAND-LIME BRICK.

Manufacture of Nearly 175,000 Bricks Reported by United States Geological Survey.

Nineteen twelve was a good year for the sand-lime brick industry.

The value of the output of sand-lime brick in the United States last year, according to figures compiled by the United States Geological Survey, was \$1,170,884, compared with \$897,664 in 1911, an increase of \$273,220. The 1912 production was slightly greater than that of 1910, which was valued at \$1,169,153, and only 4.48 per cent less than that of 1907, the banner year in the industry.

The total number of this comparatively new kind of brick manufactured in 1912 was 174,361,000, of which 164,140,000 were common brick and 10,221,000 front brick. Michigan continued in 1912 to be the leading State in value of output, its product constituting 24.54 per cent of the total value of all sand-lime products in 1912. New York was second in value of product, as in 1911, reporting 10.99 per cent of the total. Florida was third, displacing Minnesota, which fell to fourth place. Eight States—California, Florida, Idaho, Indiana, Michigan, Minnesota, New York, and Wisconsin—showed an increase in 1912, and three—New Jersey, Pennsylvania, and South Dakota—showed a decrease. Michigan showed the largest increase, \$77,392; Florida the second and New York the third. In 1911 only two states—New York and Wisconsin—showed an increase.

The average price per thousand for common sand-lime brick was \$6.45 in 1912, compared with \$6.09 in 1911 and \$6.36 in 1910; for front brick it was \$10.41 in 1912, against \$9.53 in 1911 and \$10.90 in 1910.

SAND-LIME BRICK ASSOCIATION OFFICERS. S. O. Goho, President.

S. O. Goho, president of the Sand-Lime Brick Association, was reelected at the Toronto meeting held December 3-4, 1912, at King Edward Hotel.

Mr. Goho was first elected as president at the Washington meeting, December 14, 1908, and has shown such force and executive ability that the members unanimously called upon him to continue the good work, and finally prevailed upon him to accept the office for another year.

When Mr. Goho took hold of the work the association was confronted with an indebtedness of about \$1,500 incurred by the association in defending the new industry, which seemed at that time to be the object of most violent opposition from manufacturers of competitive lines, in some instances.

The treasurer's report at the 1912 meeting showed all liabilities settled and a balance in the treasury of \$450.

Of even greater importance was the showing made of the work accomplished by the association, which had placed it in such good standing that for the past three years the United States Bureau of Standards has sent a representative to the meetings, and has made an exhaustive examination and tests of the product, proving and establishing its excellence.

This work of the association under the able management and direction of the president, Mr. Goho, has made the manufacture and sale of sand-lime brick a growing and profitable industry, both for the manufacturer and consumer, and the use of sand-lime brick is so rapidly increasing that the permanency of the industry is already established.

Mr. Goho is a man of genial presence and wins the kindly feeling of all with whom he comes in contact. He is the sales representative of the Hummelstown Brownstone Company, of Waltonville, Pa.,

whose immense quarries have furnished a beautiful brown stone for innumerable churches and public buildings all over the country. The brick made by this company is a side line only for them and are made from the ground sand-stone from their quarries, and it can safely be said that there are none better; and, in fact, their product being of such excellent quality and their process so entirely individual in its design and method that the association gladly accepted an invitation to hold the 1913 meeting at Harrisburg, December 9 and 10, thus enabling the members to visit the Waltonville plant.

Mr. Goho couples with his business acumen a lively literary taste and in fact has edited and published several text books now in use in the school work of his state. He stands ever ready and may be depended upon to furnish any information that may be desired with reference to the sand-lime brick industry or to the work of the Sand-Lime Brick Association.

FIRST UNIT OF BIG TRUS-CON PLANT COMPLETED.

The first unit of the Trus-Con Laboratories' new plant at Detroit, Mich., was opened in April of this year and was what is known as a ten-mill equipment.



S. O. GOHO, WALTONVILLE, PA.

Before it had been in operation two months the management found it necessary to place an order for twelve new mills and to order the construction of an additional building of the same size as the first unit.

The Trus-Con Laboratories started five years ago, in a very small way, as a department of the Trussed Concrete Steel Company to manufacture a complete line of high-grade waterproofings, dampproofings and technical paints. Their growth has passed all expectations, and when the new laboratories were planned, the board of directors, composed of leading Detroit capitalists, basing their estimates on the successes of the past made arrangements to build for the future increase of the business. They purchased a large tract of land and planned buildings that, built unit by unit, would take care of five years' increase in business. The demand for the Trus-Con Laboratories' products has so far passed all expectations of the manufacturers that all the units will have to be built this year, and plans are now under way for buildings not even anticipated in the first layout.

Success of this kind only comes to a business where the highest standard of goods is produced and where each product is possessed of the greatest efficiency.

*GOVERNMENT CHOOSES ALCO TRUCK.

Announcement by C. A. Benjamin, general sales manager of the Alco trucks for the American Locomotive Co., is just made of the biggest sales of motor trucks on record to haul United States mail in New York city. Representing an investment of approximately \$255,000, this contract for government work marks a climax in motor truck installations.

The trucks are all of three and one-half tons capacity, and will handle a hauling job of huge proportions. The vehicles will be fitted with the standard United States mail type of bodies. The date of delivery specified for the entire battery of machines is August 1.

The battery of vehicles will have a capacity of 4,300 tons of mail in a day, which means an annual capacity of carrying 1,550,000 tons, or 3,100,000,000 pounds. In terms of volume hauled the array of machines on each trip can transfer 24,000 cubic feet of mail. Figuring on the basis of eighteen trips, which will be required in a day, the total daily capacity is 432,000 cubic feet of mail, and the annual capacity is 157,680,000 cubic feet.

HOW TO REPAIR AND MAINTAIN THE ROADS.

The making of good roads is one of the most important duties of the American people and their prompt repair and careful maintenance is essential. There is probably no subject in which the progressive farmer is more deeply interested than that of having roads connecting him with his markets over which he may be able to haul the greatest possible load. Good roads, like all other good things, are too expensive to build and of too much value to be neglected.

The Office of Public Roads of the Department of Agriculture has published a bulletin on "Repair and Maintenance of Highways." This bulletin does not treat the subject of road building, but takes up the repair and care of roads after they are built. All classes of roads, from the natural earth road to the macadam roads with bituminous surfacing, have received attention. The action of automobiles on road surfaces is explained. The systems of road management in Massachusetts, New York, England, and France are given, with tables of costs.

The writer concludes that on account of the use of heavier vehicles and motor trucks the tendency of road building is toward a heavier and more substantial foundation and a consequent reduction of the cost of maintenance.

TRADE LITERATURE.

A very interesting little pamphlet has just been issued by The Trus-Con Laboratories, Detroit, Mich., entitled "Specifications for Use of Trus-Con Ironite Flooring." This material is used for hardening and wear-proofing cement floors. Trus-Con Ironite flooring is a finely ground metallic powder possessing the property of combining with the oxygen of the air and expanding so as to fill out and close the pores and interstices of any cementitious composition in which it is used. When employed in the top surface of cement floors, it imparts greater hardness and resistance to wear.

The Atlas Powder Company, Wilmington, Del., has recently issued a booklet under the title of "High Explosives," pertaining to blasting powder and blasting supplies. An explanation of the term "high explosives" is contained in the booklet, also the properties of high explosives and the manner of packing, handling, transporting, storing, thawing, etc., is given due consideration. Diagrams are shown of thawing boxes, etc., also many other illustrations of the company's products, results of important blasts, blasting machines and parts and tables of resistance of blasting circuits in ohms, together with many pages of valuable information which make this booklet one truly worth having on the shelf of anyone interested in this branch of industry.

The May issue of "Stag News," published by the Edgar Allen American Manganese Steel Company, Chicago, Ill., and which reaches many thousands of interested readers each month, proved to be one of the snappiest numbers yet gotten out by its editors. The little journal for that month took on a "new dress" in the shape of cover pages, etc., which is very clever. Much sparkling editorial and news matter is contained each month in Stag News, and in addition there appears many articles of engineering and technical value that should not be overlooked by the users of manganese steel. Bulletin No. 56, "Gyratory and Jaw Crusher Wearing Parts," is now ready for distribution. This bulletin treats upon the use of "Stag" manganese steel in crushers. Among other things, a description of the extensively used types of crusher heads is given. One of them, "The Hunt Nut-locked Mantle Head," is illustrated therein. This bulletin also contains cuts and descriptions of the Black Ventilated, Allis-Chalmers Gunlock mantle heads and McCully type mantle head. Bulletin No. 56 will be of interest to all users of gyratory and jaw crushers. Copies will be sent promptly upon request.

The Williams Patent Crusher & Pulverizer Co., St. Louis, Mo., is sending out to the trade circular 243, showing illustration of their machine No. 1, one of which has been in operation constantly for over sixteen years and for all practical purposes it is as good as the day it was built. M. F. Williams, of the concern, is a pioneer in the development of crushers and pulverizers. The company manufactures about 250 kinds and sizes of crushers and grinders.

The Scandinavia Belting Co., 127-129 White street, New York, N. Y., and with offices in the principal cities throughout the nation, has recently issued a little booklet pertaining to the "Scandinavia" belt and containing letters of testimonials from its satisfied users. This belting is made for transmission, conveying and elevating and is especially constructed for cement work. It is a solid woven, cotton fabric, surface-hardened and anti-frictioned throughout. It is claimed for the belting that it has no ply, stitches, but little stretch, a great tensile strength and resistance to friction.

The International Steam Pump Company, 115 Broadway, New York, N. Y., has recently shown enterprise worthy of comment, in the shape of a catalogue issued in Spanish pertaining to the Clayton Air Compressor Works and descriptive of the Clayton air compressors. The catalogue is a fine example of the printers' art, being gotten up in very attractive form, in two colors. The descriptions of the air compressors are illustrated with halftone reproductions of high quality, and many diagrams and tables are also shown which serve to make clear and understandable the matter contained in the booklet.

"Plants for Washing Sand and Gravel" is a very valuable booklet which has just come from the press. The publication was issued by the Raymond W. Dull Company, with offices in the Chamber of Commerce building, Chicago, Ill. The opening chapters are devoted to a general description of the washing process and throughout the booklet are clear and concise explanations of the parts, fully illustrated, which enter into the sand and gravel washers manufactured by the Dull company. A number of plants fully erected are also described, with pictures and diagrams of their arrangement. The company designs, equips and installs plants for stone crushing, sand and gravel washing, lime manufacture, general conveying, equipment, etc.

The Bull Dog Dump Wagon Company, with general offices in the Boston building, Kansas City, Mo., and whose factory is located at Fort Smith, Ark., is sending out an illustrated circular pertaining to the new dump wagon which the company is placing on the market. It is known as the "Bull Dog" dump wagon. The bed has the triangular center truss, making it strong, simple and effective. This principle is a modern application of a very old method. Demountable beds are made to fit any farm truck or city gear. The wagon is intended for the purpose of transporting bulk materials, and as a dump wagon has one and a half yards' sand capacity. By means of levers from his seat the driver can drop the bottom wings to dump the whole load or to so discharge it as to distribute over a space of ground. Side board wings may be so dropped to horizontal position as to give rack space for carrying hay, cotton or similar bulk products. The new wagon was perfected last winter.

Robins Conveying Belt Company, Park Row building, New York, N. Y., and with offices in the leading cities through the world, issues a series of monthly bulletins pertaining to the product of that company. Some space is given over in Bulletin 46, the first of the series, to a short but graphic history of the Robins Conveying Belt Company and its remarkable progress since its inception, about fifteen years ago. Views of its offices and plant are shown and the pictorial story of the making of the conveyors is of profound interest. The Robins conveying belt is described fully, with many illustrations of its details. Views are also shown of the belt in operation at various places and under varying circumstances. The factory of the company is located in Passaic, N. J., on the D. L. & W. R. R., and is one of the most modern and complete in the United States. The company also carries, in addition to conveyor parts, a complete line of all standard chains, sprockets and elevator parts.

Myers-Whaley Company, Knoxville, Tenn., has issued catalogue No. 2 under the title of "Shoveling Machines." In this publication the Myers-Whaley Company presents a brief description and a few photographs and drawings of its machines. These machines are based upon the invention and development of a broadly new and very efficient mechanical shoveling device. This invention and improvements are patented. These machines are built in various types, some of which are shown on the catalogue, and are applicable to a very wide range of uses. In fact, the machines can be profitably employed in almost any work of shoveling materials which is now done by hand, provided that a sufficient quantity is to be handled to get economical results. New uses and applications of the machines will suggest themselves to many, and the company invites correspondence from those who wish especial problems solved. Either electricity, gasoline, compressed air or steam may be employed for power. The machine is operated by one man.

The American Pulverizer Company, 410 Mermold-Jaccard building, St. Louis, Mo., has issued a bulletin dealing with the American Ring Pulverizer manufactured by that concern. The booklet is illustrated and contains valuable information and tables, also a number of letters received from concerns that have used the various types of pulverizers of the American make.

The American Ring pulverizer is designed for crushing and pulverizing limestone, lime, coke, ore, brickbats, sewer pipe, terra cotta, glass, quartz, phosphate rock, sandstone, gravel, tile crockery, flint, manganese ore, oyster shells, stove lining, shale and all other refractory materials. It is made in six sizes, with the view of meeting the requirements of the small, medium and large consumer.

The manufacture of what is now admitted to be one of the best pulverizing machines so far devised dates back but four years. The "Ring" is simply a modern instance of the discovery of a principle in mechanics which had not heretofore been adopted and the pulverizer is the perfected result of an idea born in the brain of a busy, practical man and the evolution of that idea from its inception has been most rapid and surprising. The little booklet mentioned above, "The Ring Is the Why," will be cheerfully mailed out by the American Pulverizer Company to those interested.

"Gyratory and Jaw Crusher Wearing Parts of 'Stag' Brand Manganese Steel" is the title of an elaborate booklet being issued by the Edgar Allen American Manganese Steel Co., McCormick Bldg., Chicago, Ill. This is known as Bulletin 56 and contains many illustrations of the wearing parts which are manufactured by the company from its famous "Stag" brand manganese steel, known throughout the world as possessing qualities of extreme hardness, strength and resilience. Some diagrams, tables, etc., are shown in the bulletin, supplemented by considerable information of interest.

The Blake & Knowles Steam Pump Works, 115 Broadway, New York, N. Y., has just issued a new catalogue illustrating and describing Blake-Knowles single pumps. It is very attractively gotten up and well illustrated with halftone reproductions and diagrams. Among the subjects treated in the booklet are single boiler feed pumps, horizontal and vertical; horizontal and vertical medium and light pressure service pumps; pumps for elevator service; hydraulic pumps; artesian deep well and sinking pumps; magma pumps; filter press pumps; ammonia pumps; direct-acting air compressors and blowers, and condenser pumps.

Smooth-On Mfg. Co., 572-574 Communipaw avenue, Jersey City, N. J., has issued "Smooth-On Iron Cement No. 7," descriptive of the product of that concern. Smooth-On Iron Cement No. 7 is a hydraulic, chemical, iron cement, prepared and sold in powder form, and is applied alone or in combination with Portland cement or with Portland cement and sand. It is claimed by the company that the use of this product will make concrete hard, dense and waterproof, as well as fireproof; it is also used for coating concrete walls, floors, etc., and repairing jobs of all kinds, as well as bonding concrete to concrete. The booklet contains descriptions of the methods to be employed in the use of the product for its various purposes, supplemented by illustrations and diagrams showing clearly how it may be applied. Samuel D. Thompson is president of the Smooth-On company, J. Haviland Thompson is secretary and Vreeland Thompson is treasurer and general manager.

NEW ARTIFICIAL STONE FOR PAVING.

C. W. Doubler, president of the Verastone Company, with offices on the eighth floor of the Otis block, Madison and LaSalle streets, Chicago, has been experimenting with artificial stone for years and evolved a material specially adapted to floors, sidewalks and pavements. This artificial stone or material is one part Portland cement and one to two parts a peculiar mineral substance. He claims for it that it will not "dust up" and that its surface has a tendency to slick over and polish and is more durable than sidewalks made of Portland cement. He has on exhibit at his office a briquet one part of which is Portland cement and two parts of the peculiar mineral substance. This briquet eight days after it was made was tested and showed a tensile strength of 750 pounds to the square inch. It is of a dark slate color required by the ordinances in many municipalities, but can be produced in maroons or dark browns. The cost of this artificial stone is approximately no higher than Portland cement. Mr. Doubler is on the eve of putting it on the market and is confident that it will create much attention.

CLASSIFIED ADVERTISEMENTS

Advertisements will be inserted in this section at the following rates:

For one insertion.....25 cents a line
For two insertions.....45 cents a line
For three insertions.....60 cents a line

Eight words of ordinary length make one line.
Heading counts as two lines.
No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

EMPLOYMENT WANTED

Wanted—A practical building material salesman or manager to head this department, take care of correspondence on plaster, lime, cement, face brick, etc. Main office Indianapolis. Permanent position waiting. Give full particulars of self. Answers treated confidential. Answer. Box 935, care Rock Products.

Wanted—For large quarry—expert blasting foreman. One who is capable of handling well drilling and blasting crew. Address Box 941, care Rock Products.

EMPLOYEES WANTED

Wanted—Position as superintendent of large lime and quarry plant. Long experience. Best references. Address Expert, care Rock Products.

Experienced plaster board mill superintendent wants position with concern engaged or desiring to engage in this industry. References. Address Box 938, care Rock Products.

Quarryman—Successful business builder and profit maker; strict cost system operator, office man, salesman and practical general manager of crusher plant; familiar with road contracting and long experienced in every detail of the business, seeks connection with a proposition having good possibilities in Ohio, Indiana or Illinois. Address Box 932, care Rock Products.

Experienced young crushed stone expert of good address wants position as manager or superintendent of larger plant. I can get results. Let me put your plant on a paying basis which my varied experience enables me to do, very readily. Address Box 939, care Rock Products.

A good, young, live and up-to-date designing, constructing and operating engineer desires change of position as superintendent of a washed sand and gravel plant. Have just erected a plant using slack line excavator and Dull screens. Can handle labor and get material out at four cents per ton or less. Address Box 942, care Rock Products.

PLANT FOR SALE

For Sale—Granite quarry in South Carolina. No. 6 crushing plant and air compressor. Entire output sold for one year ahead at good prices. Best of reasons for selling. Excellent opportunity for the right party. Write for full particulars. Address 976, care Rock Products.

For Sale—Complete crushing plant and machinery, in good condition, capable of producing 700 tons crushed stone per day, with 13 acres of available stone, with 40 foot face adjoining. Located near Olympia Mills, Columbia, S. C. Good chance for man who knows the business. For particulars address Carolina Portland Cement Company, Charleston, S. C.

For Sale—Lime plant—two kilns, capacity 150 bbls. per day, gravity system, inexhaustible supply of Lime Rock, 98% calcium. Hydrating plant. Market in four states. Also material and fuel business in connection. The reason for selling, other business. Address Box 940, care Rock Products.

PATENTS

Patents—Patents and trade-marks secured. Inventions examined. Patents investigated. Patent litigation. A. S. Pattison, 100 Barrister Bldg., Washington, D. C.

Tell 'em you saw it in ROCK PRODUCTS

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JUNE 22, 1913.

BUSINESS OPPORTUNITIES

To Lease—First-class sand and gravel pit. Plenty of room for manufacturing on the grounds. Only half mile to railroad station. Address Fischer Bros. Dry Goods Co., Peoria, Ill.

FOR SALE OR LEASE.

40 acres of clay deposit in northern Minnesota, suitable for brick or building tile. Good markets. F. Sabrean, 8 Edison Bldg., Duluth, Minn.

To Lease—Fine crystal sand and gravel pit with new machinery, consisting of three drum hoisting engine, stone crusher, washplant and cable bucket. Good market in two cities, railroad connection. For particulars, address J. B. Sperry & Son, Battle Creek, Michigan. Rooms 5 and 6 Marjorie Block.

I have a large tract of sand land for sale. Finest proposition in the world. Can be loaded by gravity. Address T. J. Nertney, Ottawa, Ill.

BARGAINS

30—1½ yd. End Dump Cars, 30 in. gauge, practically new, each \$30.00.

Gates No. 2 Gyratory Crusher, "D"—shop No. 6015—r. h. d. two arm spider—manganese head and concave, \$300.
Gates No. 5 Crusher; two arm spider, rear drive (rebuild B)—low price.

Heyward one yard clam shell bucket, \$300.

Also cableway hoists, screens, dinkey locomotives, shovels, relaying rails, etc.

Willis Shaw Mach. Co.
39 S. La Salle St., Chicago, Ill.



Reasons Why ARCHITECTS Can Specify
CALVERT MORTAR COLORS

BECAUSE

They give an Artistic Finish and Neatness,
bringing forth most favorable comment

RED BROWN YELLOW BLACK
The Kind You Will Eventually Buy SOLD TO DEALERS ONLY



Stained with Cabot's Shingle Stains and lined with Cabot's Sheathing Quilt. Robert W. Spencer, Jr., Architect, Chicago

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Creosote Stains for Shingles, Siding, Clapboards, Trimmings, Boards, and all other Exterior Woodwork.

Waterproof Cement and Brick Stains for waterproofing and artistically coloring cement and brick buildings.

"Quilt" for lining houses to keep out cold or heat, for sound-deadening in floors and partitions, and for insulating cold storage and refrigerators.

Conserve Wood Preservative for preserving Posts, Planks, Sills and all other exposed timbers. Mortar Colors, Protective Paints for Metals, Waterproofing Compounds, etc.

SAMUEL CABOT, Inc., Mfg. Chemists
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New York

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ROCK PRODUCTS**FOR SALE**

250 acres of the very best Nova Scotia white plaster. Price \$100,000. Apply to Thomas Doran, Windsor, Nova Scotia.

FOR SALE OR LEASE.

60 Acre tract limestone, with completely equipped crushed stone plant, 500 tons capacity; lime kilns, store and tenement houses. Excellent demand for output. Located on main line of a good railroad in Tennessee. Address Box 929, care ROCK PRODUCTS.

MACHINERY WANTED

Wanted—No. 5 McCully Gyratory Crusher; also one 200 H. P. Corliss Engine. In good condition. Lenni Quarry Company, Real Estate Trust Bldg., Philadelphia, Pa.

Wanted—One No. 2 or No. 3 gyratory crusher for experimental work. Must be in good working order. Give price and place where machinery can be examined. Address R. B. J., P. O. Box 583, Cincinnati, Ohio.

MACHINERY FOR SALE**FOR SALE CHEAP**

TWO RAILROAD TRACK SCALES.
with automatic weighing devices. In good condition. Can be used as single or double track scales. Address Pinner Coal Company, Nashville, Tenn.

124 different size culvert forms outfit for \$100. Good as new. Manufacturers charge \$2,000 for same capacity. Write quick. Harry Frick, Line Lexington, Pa.

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"THE BEAL CORE DRILL", is the best, cheapest, and most effective drill for testing quarries, coal and mineral lands. Borings made for foundations. A few holes put down with this machine, will show the different formations and prove the extent of the field to be explored. Contract work done, and new machines for sale. Correspondence solicited.

EDWIN S. BEAL
214 Woodlawn Ave. Lansing, Mich.

Anchor Brand Colors

For Mortar, Cement and Brick
Brown, Black, Red and Buff
Strongest and Most Durable

Manufactured by **C. K. Williams & Co.**
Correspondence Solicited Easton, Pa., U. S. A.

DESIRABLE SITES FOR Cement and Lime Plants

Many valuable Cement and Limestone deposits adjacent to good transportation facilities, near to cheap fuel and where labor is plentiful are offered in several of the Southeastern states along the

Southern Railway System

The local demand for agricultural Lime and the rapid advancement of concrete construction in the Southeastern states have created excellent markets for the output of many plants. Our free services are at your command in aiding you find a favorable location.

M. V. RICHARDS, Land and Industrial Agt.
Room 371, Southern Railway
WASHINGTON, D. C.

For Sale—Four steel tanks or bins, 14 feet in diameter, 40 feet high. Also boilers, engines, pumps, etc. All suitable for anyone intending to build gravel washer. All will be sold cheap because of expiration of lease on pit. Address Garden City Sand Company, Chamber of Commerce, Chicago, Ill.

For Sale—One C. O. Bartlett & Snow Co. Direct Heat Rotary Dryer, 36"x24", Style M. Will sell for \$400 f. o. b. our works; blue print furnished. Winchester Granite Brick Co., Winchester, Ky.

For Sale Cheap—Second-hand Reliance Crusher, 8x14; Champion Crusher, 11x26; Sturtevant Fine Crushers, 6x15 and 6x30; all above with Manganese Jaw Plates; Sturtevant No. 2 Ring Roll Mill, the best grinder in the world; 36x16 balanced rolls. All kinds of new crushing machinery. Complete plants. Robert M. Gay Company, 114 Liberty St., New York. Fine Crushing and Grinding Specialists.

FOR SALE—BARGAIN

1-110 ton 3½ yard Steam Shovel.
1-12 ton 3-wheel Steam Roller.
4-150 H. P. Boilers, complete with breeching to 90 ft. stack.
1-¾ yard Koeberling Traction Mixer.
2 No. 8 Crusher Plants, complete with engines, boilers, compressors.
1-65 ft. private car, complete.

DOLESE & SHEPARD CO., CHICAGO, ILL.

CULVERTS
CONCRETE
CULVERT FORM (Steel)
ADJUSTABLE 15 SIZES \$47
CATALOGUE FREE
FRANCIS MACHINERY CO., 4 Market St., St. Louis, Mo.

AIR COMPRESSOR

For Sale—One Ing.-Ser. Class G2 Duplex Steam and Cross Compound Air. Size 12 x 11½ and 18½ x 14. Capacity, 638 ft. to 100 lbs. air pressure. Code name "Georgiana." Little used, fine condition; immediate shipment, must move; low price.

If you need Hoists, Cars, Derricks, Pumps, Locomotive Cranes, Steam Shovels, etc., confer with me.

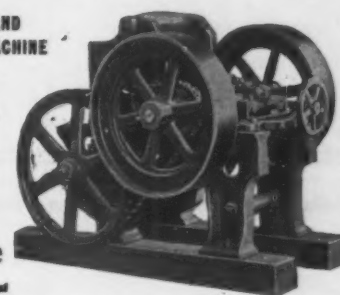
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1216 PEOPLES GAS BLDG. CHICAGO, ILL.

MARTIN STONE CRUSHER AND GRINDER

IS A SAND
MAKING MACHINE

Maximum
Capacity
25 tons
Daily

Net Price
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No. 2 Receiving Opening 12x5 inches
Weight 1,800 lbs. 3 Horse Power

Guaranteed and sent on ten days' working trial, **send in your Order** and pay after you have tried it out.

Limestone, Lime, Fieldstone, Flint, Marble, Granite, Sandstone, Oyster shells, Rock, Etc., can be reduced at one operation to the fineness of sand, or to ½", ¾", 1" or 1½" for roads, concrete materials and fertilizing purposes.

H. MARTIN BRICK MACHINE MFG. CO.
Lancaster, Pa., U. S. A.
Crushers built in larger sizes also

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Quarry Projects and Management a Specialty.
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 stone Company. Consulting Geologist National Limestone Company.

Examination, Reports, Consultation on development
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—CHICAGO—

Specialists in Hard Iron and Chilled Castings—
 Brick Yard Rolls—Hard Liners, etc. Gray
 Iron Castings, all kinds. Small Car Wheels.

CLINTON METALLIC PAINT CO.

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LARGEST AND OLDEST MANUFACTURERS OF

**BRICK AND
MORTAR****COLORING**

Be sure you get the genuine with the "Little Yellow Side Label"
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Let us tell you about Side-Walk Black.

THE SUMMIT SILICA CO.

BARBERTON, OHIO.

PRODUCTS: Steel Moulding Sand, Sand Blast Sand, Fire Sand, Core Sand, Concrete
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SHIPPING FACILITIES: Pennsylvania Lines, New York Central Lines, Baltimore &
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Our material is thoroughly washed and screened, insuring an absolutely uniform
 quality. Kiln dried by the very best process known in the sand business. Finest
 Equipped Mill and Best Material in the World.

TISCO**MANGANESE
STEEL CASTINGS**

—FOR SEVERE SERVICE—

TAYLOR-WHARTON IRON & STEEL CO.
 HIGH BRIDGE, NEW JERSEY

PERFECTION IN BLOCK MAKING

If you wish to attain this you should combine these three important features:

**Wet Process, Face Down,
 Damp Curing.**

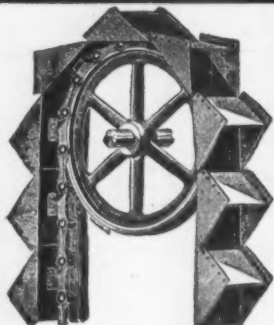
The PETTYJOHN INVINCIBLE Machine does this, and is the only machine that
 does. Tandem Invincible makes two blocks at once. Price \$65.00 and up. Single
 Invincible, \$35.00 and up. With our Triple Tier Racking System green blocks can be
 stacked three high direct from machine with inexpensive home-made rigging. Plans
 and blue prints free to customers. It economizes space, reduces off-bearing dis-
 tance and above all insures slow, even, damp and perfect curing and bleaching.

Write for our latest edition of "Stone Making," a book of valuable data, just
 off the press—FREE.

THE PETTYJOHN COMPANY

614 North Sixth Street.

Terre Haute, Indiana.



Send for Catalog 25

**THE GENERAL CRUSHED
STONE CO.,**

So. Bethlehem, Pennsylvania,

have been using one of our Common Sense Elevators for six years—
 capacity 400 tons an hour.

THE C. O. BARTLETT & SNOW CO. CLEVELAND OHIO**"STAG" BRAND****Manganese Steel
Castings****Edgar Allen American Manganese Steel Co.**

Chicago, Illinois

New Castle, Delaware

WHEN a Leviathan salesman comes up to you and
 says he wants to sell you a belt on a "make-
 good" basis, listen to him. He can tell you something
 worth while about the belt you ought to have.



Write our nearest house for convincing facts.

MAIN BELTING COMPANY

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Philadelphia
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 Seattle

Boston
 Birmingham

MAIN BELTING CO. OF CANADA, Ltd.
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YOU CAN'T FADE 'EM

There's one "best" in every line, but that is not always best for everyone
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**Ricketson's Mineral
COLORS**

are acknowledged to be the best choice for everybody. Best for the
 architect because purest. Best for the contractor because they go
 farther. Best for the owner because they never change their color.

For Mortar, Brick, Cement, Stone, Etc.
 Red, Brown, Buff, Purple and Black

RICKETSON MINERAL PAINT WORKS**MILWAUKEE, WIS.****Red, Brown, Buff and Black****MORTAR
COLORS**

The Strongest and
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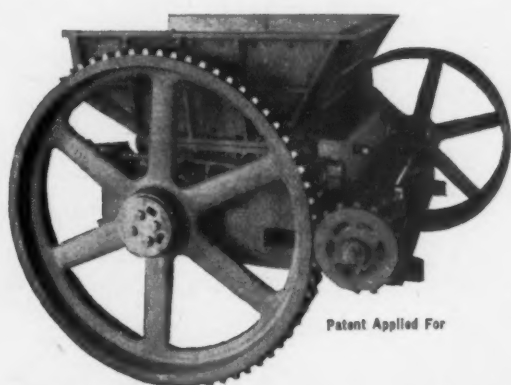


Our Metallic Paints and Mortar Colors are unsurpassed in
 strength, fineness, and body, durability, covering power and
 permanency of color. Write for samples and quotations.

CHATTANOOGA PAINT CO.

Chattanooga, Tennessee

Tell 'em you saw it in ROCK PRODUCTS



SINGLE ROLL CRUSHERS

For Limestone, Phosphate Rock and Cinder, etc. Any Capacity from 5 to 500 Tons per Hour. More Easily Fed, Makes Less Fines than Either a Jaw or Gyratory Crusher. Information and Prices for the asking.

McLANAHAN-STONE MACHINE CO., Hollidaysburg, Pa.

FOUND AT LAST



A PERFECT STEAM SHOVEL CHAIN

"HERCULES SOLID WELD"

EVERY LINK AS STRONG AS THE SOLID BAR

Cannot come apart at weld. Made from tough high grade hammered iron.
The chain that lasts until entirely worn out.
No delays from broken chain. It is a marvel in rock work.

Made only by

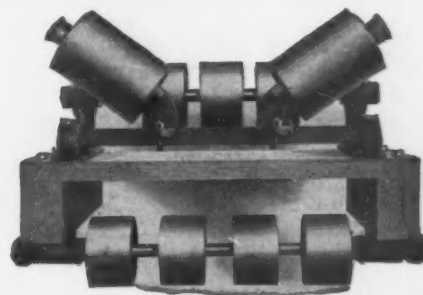
THE COLUMBUS CHAIN COMPANY

Lebanon, Pa.

Columbus, Ohio

Address all communications to COLUMBUS, OHIO

IMPROVED BELT CONVEYORS



The cost of handling large quantities of material is one of the great problems in any manufacturing plant. To carry Crushed Stone, Lime, Ore, Clay, Sand, Gravel, Coal, etc. by Belt Conveyor means small first cost with large output at the minimum expenditure of labor.

The above design of Belt Concentrator has been found entirely satisfactory in every kind of service. It troughs the belt and at the same time provides proper support where most needed to sustain the weight of material being carried.

The Lubricating arrangement is convenient and thorough and the use of grease for lubrication provides not only the best means of lubricating the pulleys but also has the effect of keeping the bearing surfaces clean and providing a dust-seal around the ends of the pulley hubs.

For other Belt Conveyor devices see our

CATALOG No. 34

We manufacture Helicoid and Screw Conveyors, Chain and Cable Conveyors for handling Rock, Lime, Sand, etc., also Elevators, Shafting, Couplings, Bearings, Collars, Pulleys, Gears, Sprocket Wheels, Elevator Bolts, etc.

H. W. CALDWELL & SON Co.

CHICAGO: Western Avenue, 17th to 18th Sts.

NEW YORK: Hudson Terminal, 50 Church St.

ROCK PRODUCTS

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American Keene Cement Co. 1	Classified Business Directory 56	Imperial Belting Co. 34	National Lime & Stone Co. 12	St. Louis Port. Cement Co. 31
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American Process Co. 18	Clinton Metallic Paint Co. 50	Ironton Portland Cement Co. 2	National Retarder Co. 10	Summit Silica Co., The. 50
American Pulverizing Co. 7	Columbus Chain Co., The. 51	Jaeger Machine Co. 62	Niagara Gypsum Co. 61	Symons Bros. Co. 50
American Steel & Wire Co. 11	Contractors Mch. & Sup. Co. 52	Jeffrey Mfg. Co. 58	Northwestern States Portland C. Co. 2	Taylor-Wharton Iron & Steel Co. 50
Atlas Car & Mfg. Co. 64	Coplay Cement Mfg. Co. 32	Johnston & Chapman Co. 16	Novo Engine Co. 62	Troy Wagon Works Co., The. 63
Atlas Portland Cement Co. 64	Cummer & Son Co., F. D. 61	Kansas City Pt. Ct. Wks. 31	Ohio & Western Lime Co. 13	Trus-Con Laboratories, The. 54
Austin Mfg. Co. 7	Cyclone Drill Co., The. 31	Kelley Island Limp & Trans. Co. 12	Ottawa Silica Co. 1-32	Underwood Typewriter Co. 62
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Canada Cement Co. 2	Goodrich Co., The B. F. 57	Meade, Richard K. 32	Shaw, Willis 49	Worrell, S. E. 18
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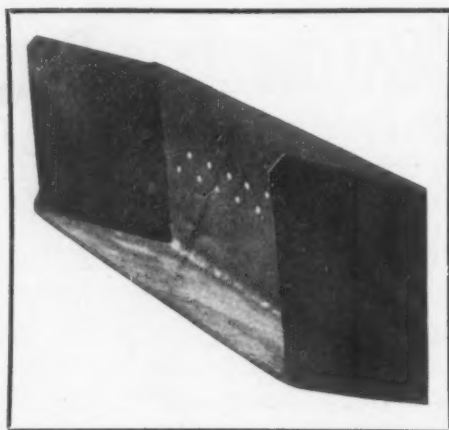
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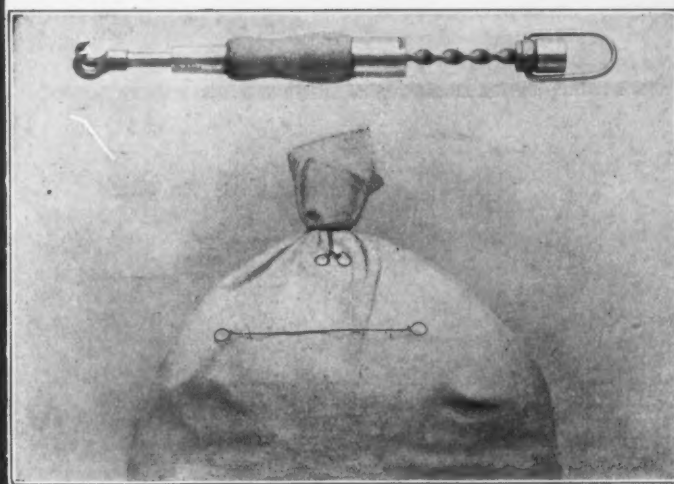
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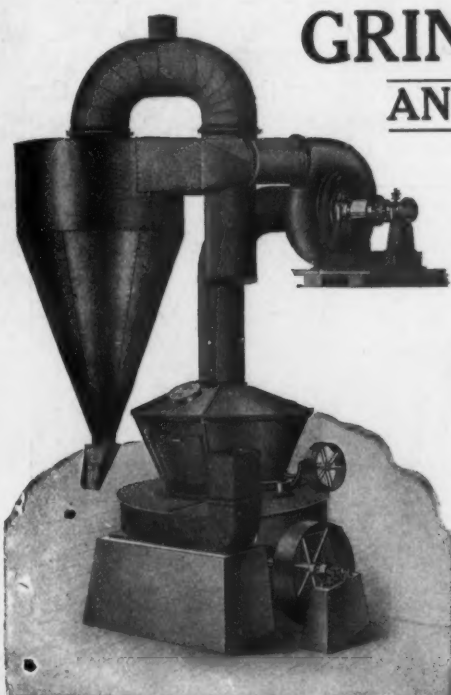
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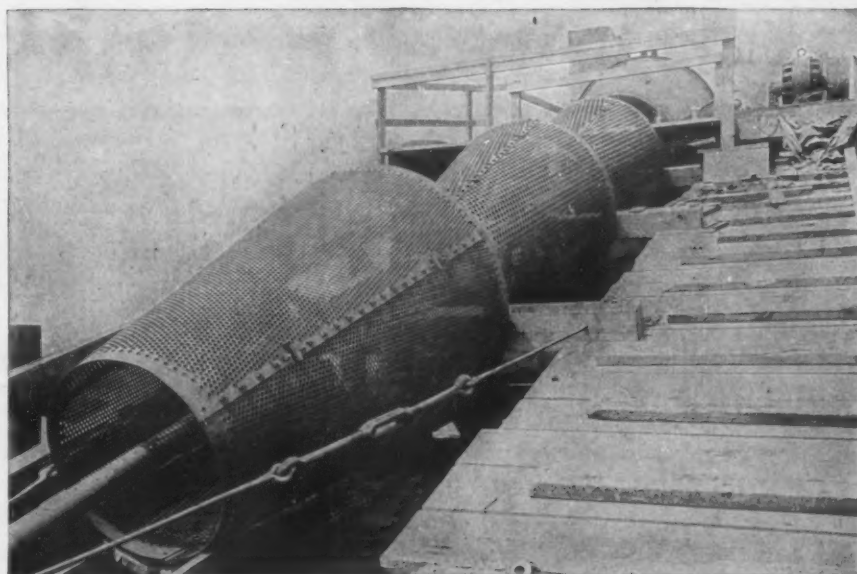
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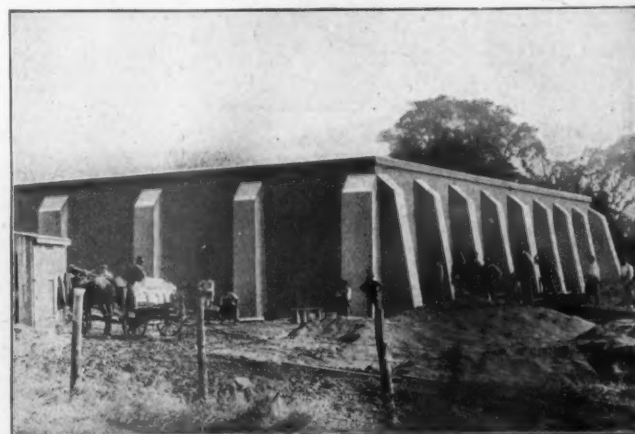
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It works so rapidly that teams and trucks are never kept idle waiting. It sets the pace for the men and teams.

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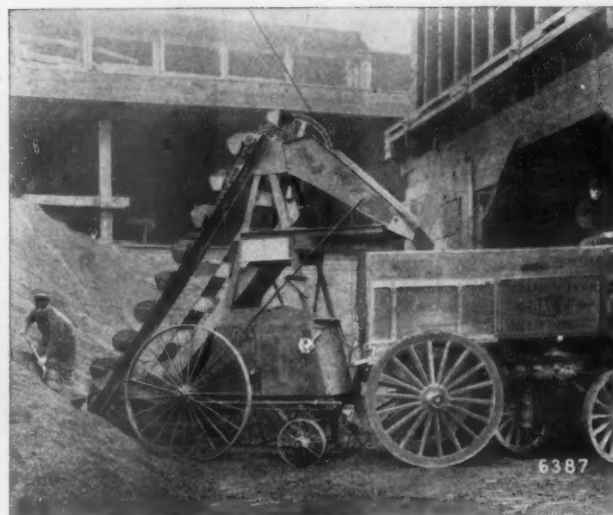
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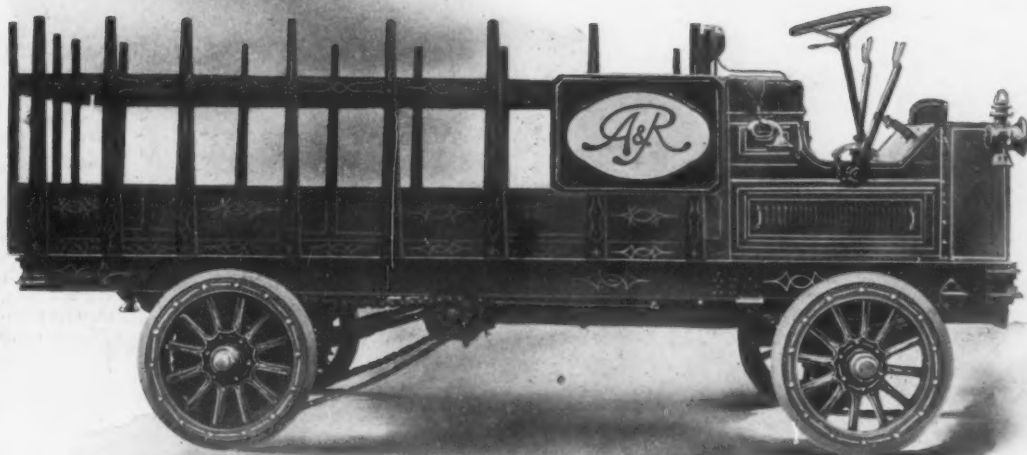
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No. of Truck _____ Capacity _____ Month _____

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				Quantity	Cost	Quarts	Cost	Quarts	Cost	Rebates	Amount	Rebates	Amount	Rebates or Replacement	Repair or Replacement	Rebates or Replacement	Repair or Replacement	Rebates or Replacement	Repair or Replacement	Rebates or Replacement	Repair or Replacement	Rebates or Replacement	Repair or Replacement	Rebates or Replacement	Repair or Replacement	Rebates or Replacement	Repair or Replacement	
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That's Best in Rubber



Branches in all principal cities

There is nothing in
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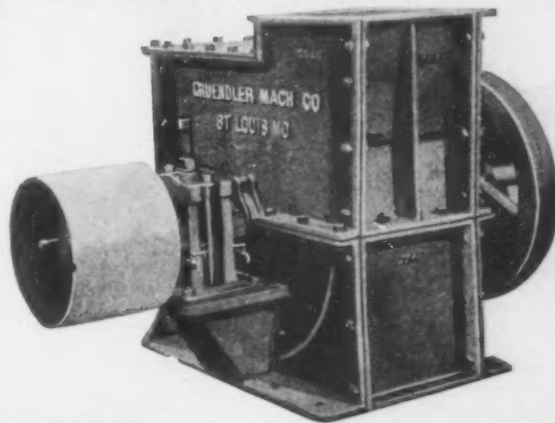
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The perfect machines, especially adapted for crushing, grinding, and pulverizing Lime, Marl, Shale Fire Clay, Gypsum, Rock, Terra Cotta, Coal, and all kinds of cementitious materials to any fineness.

Manufactured in sizes from 3 to 400 tons daily capacity. Our machines can be adjusted to grind almost all kinds of material. We guarantee perfect satisfaction.

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GRUENDLER PATENT CRUSHER & PULVERIZER CO.
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SHEARER & MAYER

Drag Line Cable Way Excavator

(Patented)

Designed for digging and conveying material from under water or from a dry pit.

**MODERATE FIRST COST, LOW COST OF MAINTENANCE
LARGE AREA OF OPERATION, SIMPLICITY OF OPERATION**

are some of the advantages this machine has to offer. It will pay you to investigate this Excavator before installing any machinery for stripping or digging or for conveying the material from pit to plant. Write us your conditions and requirements, and we will advise you of the adaptability of this machine to your work.

SAUERMAN BROS., 1140 Monadnock Block, CHICAGO, ILL.

ENGINEERS AND DEALERS IN WIRE ROPE, AERIAL
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Best shapes.

Will not break or
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Highest Grade Grinding
Pebbles for Tube Mills

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Send Today for the Latest Jeffrey Pulverizer Bulletin No. 47



This Booklet fully illustrates and describes the distinctive features in Design and Construction that have made the JEFFREY SWING HAMMER PULVERIZER a practical as well as a commercial success.

If you are interested in obtaining the best possible results from your crushing equipment, you can't afford to be without this bulletin.

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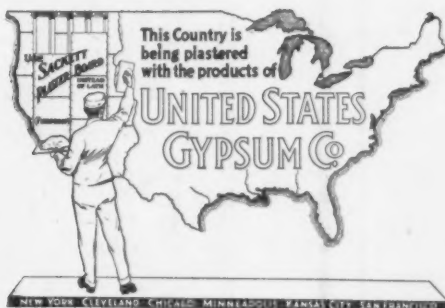
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THE LOGICAL LATHING MATERIAL
THE BEST IN GYPSUM PLASTER



PYROBAR GYPSUM TILE

Recognized highest standard of efficiency
in Fire-Proofing

U. S. G. PRODUCTS—"THE PROGRESS OF THE GYPSUM INDUSTRY"

KING'S WINDSOR CEMENT FOR PLASTERING WALLS AND CEILINGS

Buffalo Branch, CHAS. C. CALKINS, Manager
322 W. Genessee Street.

Not the hardest, but the toughest and best Wall Plaster made—Can be applied with less labor. Has greater covering capacity than any other similar material—

J. B. KING & CO., 17 State Street, New York.

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Are the Business Mart of the Industry

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537 S. Dearborn St., CHICAGO

PEERLESS

means without an equal and that is what our products are beyond the shadow of a doubt.

Peerless Plaster-Board

The Best on the Market To-day

Peerless Plaster Board has no superior on the market today. Strength, durability, and uniformity in thickness with clean cut edges are its chief virtues.

Peerless Plaster Board finished with Peerless Plaster make a Peerless Wall. Builders' Supply Retailers say it is the best Plaster Board manufactured. If you are "from Missouri" write us today for sample and prices.

— Write today for our —
PEERLESS PROPOSITION



Peerless Cement Plaster
Peerless Wood Fibre Plaster
Peerless Sanded Plaster
Peerless Ready Finish
Peerless Portland Stucco
(Exterior Plastering)

We Ship Mixed Cars
of Plaster and Board

Peerless Plaster Board comes in sheets 32 inches by 36 inches.

Peerless Plaster Board is a fire retardant and an efficient sound deadener.

Peerless Plaster Board is a non-conductor of heat and cold.

Peerless Plaster Board is an insurance against cracks, buckles, and lath stains.

— Get in line with —
THE PEERLESS LINE
WRITE TODAY

M. A. REEB, : Buffalo, New York

Tell 'em you saw it in ROCK PRODUCTS



Dri-Crete Waterproofing is an odorless liquid, thin as water and white as milk, which, when incorporated in a cement mixture, renders the resultant mortar poreless and absolutely proof against moisture. It is unaffected by climatic conditions and is equally effective on new or old masonry. We used to guarantee Dri-Crete for three years. Now

WE GUARANTEE IT FOREVER

In treating basements or other underground concrete work, Dri-Crete is mixed with the cement mortar and plastered onto the interior surface. It forms a waterproof coating that pressure does not affect.

On exterior concrete or brick work, Dri-Crete is applied with a brush, eliminating the danger of moisture absorption and preventing stains. You can tint Dri-Crete any desired color.

Put your waterproofing problem up to "The Scotch Laddies." They'll go into your proposition and advise you as to the materials to use and method of applying them. Write today for full particulars.

Agents Wanted In Every Town

DRI-CRETE COMPANY
INCORPORATED
219 W. 29th Street NEW YORK CITY

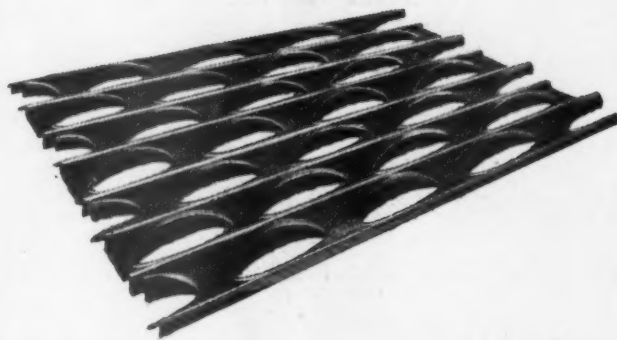
WARNING!

PLEASE take notice that on account of certain Manufacturers, Jobbers and Dealers offering an imitation and inferior Metal Lath, representing it to be "BOSTWICK STEEL LATH," we are compelled to issue this notice that the Bostwick Fireproof Steel Lath is manufactured **ONLY** by us and by no other concern.

We are now attaching to every bundle of our own make, a tin tag, bearing our name.

Below is a fac-simile of the tag, also of

TRUSS-LOOP LATH



While we appreciate that to imitate our lath is a compliment and most flattering, **WE DO OBJECT** to have others reap benefits from our labors and our good name with the Trade. Some have gone so far as to almost imitate our name. In a spirit of fairness and a "square deal," we trust you will place your mark of disapproval upon these questionable methods by making sure that the goods are genuine and sending orders for Bostwick Fireproof Steel Lath "Truss-Loop" to

The Bostwick Steel Lath Co.
Niles, Ohio

IMPORTANT Advertisers—Take Notice

Changes of Copy

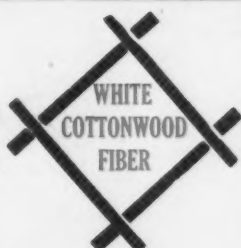
Must be in this office by the Thirteenth of the month, if proofs are desired, if no proofs are required the desired changes can be made if copy is received by noon of the Seventeenth.

New Advertisements

To insure proper classification, should be in this office by the Fifteenth of the month, but they can be inserted in the last form going to press if received by the Nineteenth. The punctual publication of the paper admits no deviation from these rules. Advertisers are earnestly requested to co-operate with us.

The Francis Publishing Company
537 South Dearborn Street, Chicago, Ill.

BETTER and CHEAPER than
hair in HYDRATED LIME



Superior Plastering Fiber
COTTONWOOD FIBER CO.
ST. LOUIS

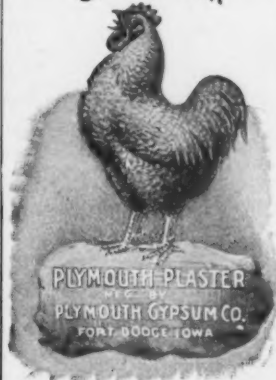
Cummer Continuous Process
CALCINING
GYPSUM

No
Kettles
Used

Plants
in
Operation

CUMMER DRYERS DRY EVERYTHING
The F. D. Cummer & Son Co.
CLEVELAND, OHIO

CROWING FOR



PLYMOUTH PLASTER
WOOD FIBER PLASTER
PLYMOUTH FIREPROOF
PARTITION BLOCKS
PLASTER BOARD
STEEL STUDDING

THE QUALITY BRANDS

WRITE US FOR PRICES AND
ADVERTISING MATTER

Plymouth Gypsum Co.
Fort Dodge, Iowa



Plaster Perfected By Specialization

We are the only concern
in the country to special-
ize upon Keene's Cement.
Our reputation is hinged
solely on this one product
and we do not take any
chances! Handle

Best Bros. Keene's Cement

**"The Plaster that Stands
Hard Knocks"**

In Best Bros. Keene's
Cement you have a guar-
antee of enduring service.

Wherever interior plas-
ter is used, there Best
Bros. Keene's will give
the ideal service. Famous
for 25 years on account of
its durability and freedom
from repairs.

Prompt shipment of any
quantity at any time.

Our extensive advertis-
ing makes sales for you.

WRITE US

THE BEST BROS. KEENE'S CEMENT CO.

(Estab. 1889) Dept. A, MEDICINE LODGE, KAN.

NEW YORK OFFICE—103 Park Avenue

CHICAGO OFFICE—1st National Bank Building



(36)

Tell 'em you saw it in ROCK PRODUCTS



WHAT IT MEANS TO YOU

Low Charging means more output.

The low charging platform is only about 2 feet high and attached to the mixer. The Semi Automatic Discharge means less labor.

This discharge is the simplest, quickest, and easiest operated on the market.

The Open Drum means uniform high grade concrete.

Allows the entire batch to be seen while mixing.

Low First Cost and Low Operating Cost means more profit.

Built mounted on two or four wheels with either side or rear discharge and adapted to all classes of work, as it will mix concrete, cement mortar, plaster, Westrumite, Tar Asphalt, Tarvia, etc.

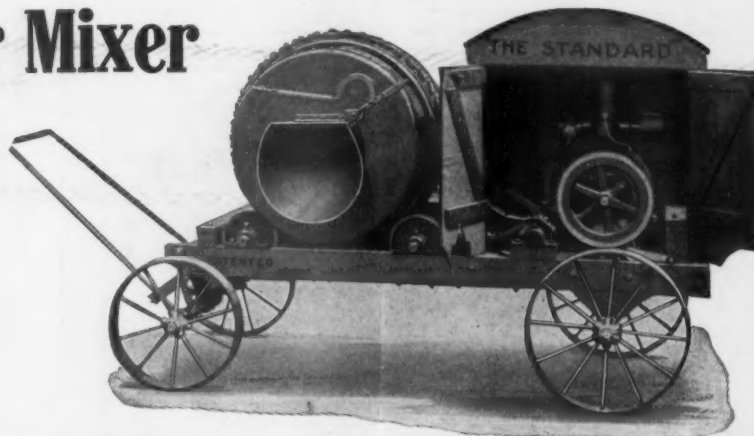
"The Standard" Junior Mixer

Can be placed anywhere on the job and can be moved very easily by one man. "The Standard" Junior is especially adapted to your class of work and will pay for itself in one or two weeks. Every day that you are without "The Standard" Junior you are losing money. You have lost hundreds of dollars already. Write for a new catalogue No. 33-J and prices.

The Standard Scale and Supply Company

CHICAGO
1345-1347 Wabash Ave.
PITTSBURGH
243-245 Water Street

NEW YORK
136 West Broadway
PHILADELPHIA
35 South Fourth Street



International Contest Records

tell the typewriter tale.

They prove that the

UNDERWOOD



Holds Every World's Record
for Speed and Accuracy

"The Machine You Will Eventually Buy"

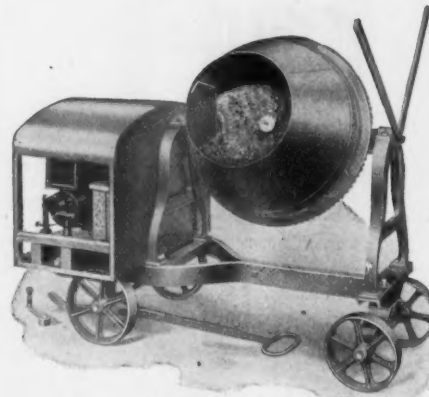
Underwood Typewriter Company

(Incorporated)

Underwood Building, New York

BRANCHES IN ALL PRINCIPAL CITIES

Stop!—Look!!—Listen!!! The Big-An-Little-Mixer A MIX A MINUTE



If so, think of every possible advantage you could ask for or desire in a Small Batch Mixer. Check them over against the "BIGANLITTLE" and you will find them all present. Try it.

First crack out of the box, you want.

A Mixer that really mixes—A Mixer where you see what's going on—A Mixer that mixes all kinds of material—A Mixer that runs easy and takes little power—A Mixer that is easily loaded and unloaded—A Mixer that is easily cleaned—

ed—A Mixer that is strong and durable—A Mixer that will save you money—A Mixer that you buy at the right price.

If you are a contractor on big and little jobs, write us for more information about this "BIGANLITTLE" Mixer, which will be a surprise for you on big and little jobs, as this mixer is both big and little—big in results and little in size.

Smaller than other Big Mixers Larger than other Small Mixers

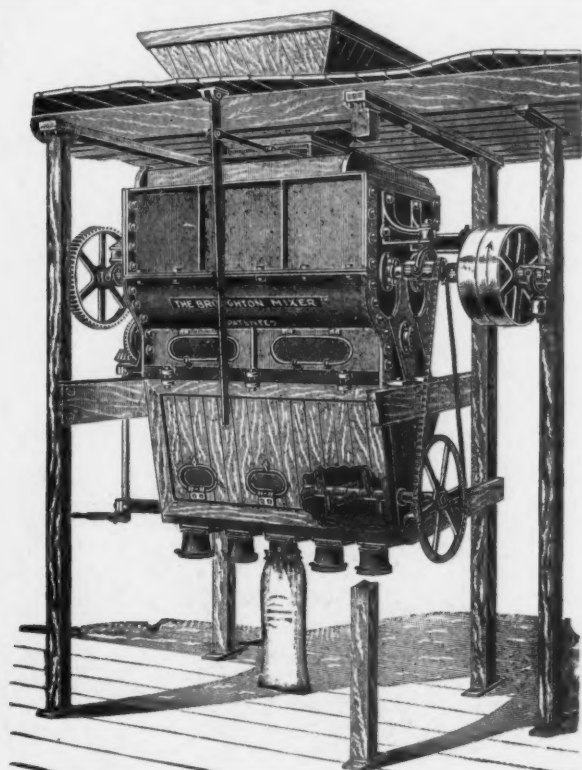
PRICE F. O. B. FACTORY, \$165.00

Write for Catalog A-1

The Jaeger Machine Co., 216 West Rich Street,
COLUMBUS, OHIO

Eastern Representative: S. M. COE, 150 W. 65th Street, New York City.
Pacific Coast Representatives: THE EDWARD R. BAC N & CO., San Francisco, Calif.

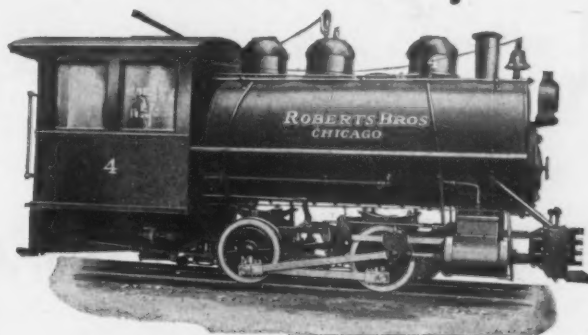
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The most thorough and efficient
Mixers of Plaster, Cement and
Dry Materials. Send for Circular.

W. D. DUNNING, Water St., Syracuse, N. Y.

Do You Have Cars to Haul?
The Davenport Locomotive
Will Save Money



Special Designs for Special Purposes
Any Size, Any Gauge, Any Weight
Write for Prices and Particulars

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DAVENPORT, IOWA

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Seattle, 617 Western Ave.
St. Louis, 654 Peirce Bldg.

New York, 39 Church St.

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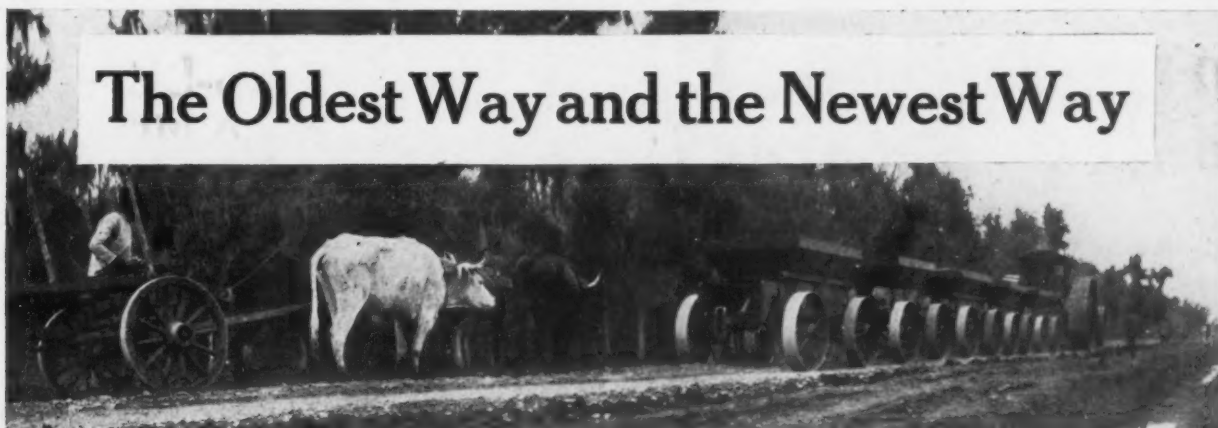
Cincinnati, O., 703 1st Nat. Bank Bldg.

Canadian Representatives:

F. H. Hopkins & Co., Montreal, Que.,

Dominion Equipment & Supply Co., Winnipeg, Man., Edmonton, Alta.

The Oldest Way and the Newest Way



This little scene from a Texas road job shows an unusual coming together of the oldest way of hauling and the very newest way—the ox team and Troy Reversible Wagons with a traction engine.

The horse replaced the ox in hauling work because the horse was more efficient. The horse did more work and better work for less money.

The horse still has its place but on big hauling jobs, the horse must go just as surely as the ox did. Troy Reversibles with an engine will do the work better at from $\frac{1}{4}$ to $\frac{1}{2}$ the cost.

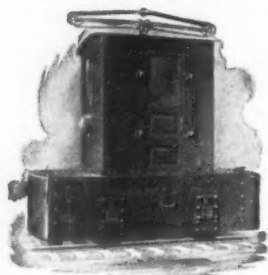
If you have a big hauling job or think you may have some day, you ought to have our Hauling Book P. R. We'll be glad to send it to you.

THE TROY WAGON WORKS CO.

101 E. Race St.

Troy, Ohio

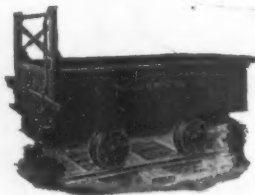
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No. 6550
Electric Industrial Locomotive

THE ATLAS CAR & MFG. CO. CLEVELAND, OHIO

— MANUFACTURERS OF CARS FOR —
QUARRIES, CEMENT WORKS, AND GENERAL
USES. ELECTRIC CARS AND LOCOMOTIVES,
TURNABLES, SWITCHES, FROGS.



No. 274
End Dump Quarry Car



No. 805
Dumping Stone Carrier.

SHAM-ROCK



ATTENTION

Cement and
Building
Material Dealers

SHAM-ROCK



Sales Agents wanted for McCormick Shamrock
Brand Waterproof Compound.

Recognized over the country as the standard
Waterproofing.

Specified by all the leading Architects and En-
gineers and used by all competent Contractors.

Make and sell waterproof cement yourself reliev-
ing the contractor of any additional trouble with
mixing.

Write for full information.

CHICAGO OFFICE

McCormick

Waterproof Portland

SHAM-ROCK Cement Co. SHAM-ROCK

Manufacturers



Bank of Commerce
Building

ST. LOUIS, MO.



When you hear some-
one say;
 “Atlas or equal”
doesn't it drive home
the fact that “Atlas” is—

*“The standard by which all
other makes are measured”*

Tell 'em you saw it in ROCK PRODUCTS

6